Service Manual

Turntable System

SL-M3

Area
* [M] .....U.S.A.
* [MC] ...Canada
* [E] .....Switzerland and Scandinavia.
* [EK] ....United Kingdom
* [XL] ....Australia
* [EG] ....F.R. Germany
* [EB] ....Belgium
* [EH] ....Holland
* [EF] ....France
* [Ei] .....Italy
* [EC] ....Czechoslovakia
* [XA] ....Southeast Asia, Oceania, Africa, Middle Near East and Central South America
* [XM] ....Central South America
* [PA] ....far East PX
* [PE] ....European Military
* [PC] ....European Audio Club
* [XZ] ....New Zealand

* Sets for [M] and [MC] areas are not provided with cartridge.
[1P] is the standard mark for the "P-mount" plug-in-connector system. Products carrying this mark are inter-changeable and compatible with each other.

English

Specifications

Specifications subject to change without notice.
Weight and dimensions shown are approximate.

■ General

Power supply: For U.S.A. and Canada:
120 V AC, 60 Hz
For others:
~ 110-120/220-240 V, 50 or 60 Hz

Power consumption: For U.S.A. and Canada: 27 W
For others: 25 W

Dimensions: 52.6 X 20.5 X 42.5 cm
Maximum height when dust cover is open.
52.6 X 52 X 50 cm

Weight: 15 kg

■ Turntable section

Type: Quartz direct drive
Fully automatic turntable

Features: Auto start/Auto lead-in
Auto return/Auto stop
Repeat play
2 speed search play

Drive method: Direct drive

Motor: Brushless DC motor

Drive control method: Quartz-phase-locked control

Turntable platter: Aluminum die-cast
Diameter 32.5 cm (12-13/16")
Weight 2.5 kg (including turntable mat)

Turntable speeds: 33-1/3 rpm and 45 rpm
Auto speed select
(Manual selection possible)

Pitch control: ±6% range

Starting torque: 1.6 kg·cm

Build-up characteristics: 0.9 second to 33-1/3 rpm

Speed change due to load torque: 0% within 1 kg·cm

Wow and flutter: 0.008% WRMS*
0.022% WRMS (JIS C5521)
±0.031% peak
(IEC 98A Weighted)

*Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble: —70 dB (IEC 98A Unweighted)
—82 dB (IEC 98A Weighted)

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■ Tonearm section

Type:	Dynamically-balanced type Linear tracking tonearm 4-pivot gimbal suspension
Effective length:	23.8 cm
Tracking error angle:	Within ±0.5°
Effective mass:	13 g (including cartridge)
Resonance frequency:	10 Hz
Tonearm drive motor:	DC motor
Phono cable capacitance:	100 pF

■ Cartridge section

Type:	Moving magnet stereo cartridge
Magnetic circuit:	All laminated core
Frequency response:	10 Hz ~ 50 kHz 20 Hz ~ 10 kHz ±1 dB
Output voltage:	2.5 mV at 1 kHz, 5 cm/s. zero to peak lateral velocity (7 mV at 1 kHz, 10 cm/s. zero to peak 45° velocity [DIN 45 500])
Channel separation:	More than 22 dB at 1 kHz
Channel balance:	Within 1.8 dB at 1 kHz
Recommended load impedance:	47 kΩ ~ 100 kΩ
Compliance (dynamic):	12×10^{-6} cm/dyne at 100 Hz
Stylus pressure range:	1.25 ±0.25 g (12.5±2.5 mN)
Weight:	6 g (cartridge only)
Replacement stylus:	EPS-33ES

- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and the replacement parts list.
  - ★ 120V (60 Hz) for U.S.A. and Canada.
  - ★ 220V (50 Hz) for Continental Europe.
  - ★ 240V (50 Hz) for United Kingdom and Australia.
  - ★ 110V—120V/220V—240V (50/60 Hz) for other areas.
  - ★ Except for [M] and [MC] areas are provided with voltage selector.

Deutsch

TECHNISCHE DATEN

Änderungen der technischen Daten vorbehalten.
Die angegebenen Gewichts- und Abmessungsdaten sind ungefähre Werte.

■ Allgemeine Daten

Stromversorgung:	—110-120/220-240 V, 50/60 Hz
Leistungsaufnahme:	25 W
Abmessungen: (B×H×T)	52,6 × 20,5 × 42,5 cm 52,6 × 52 × 50 cm (Maximale Höhe bei vollständig geöffnetem Gehäuseoberteil)
Gewicht:	15 kg

■ Plattenteller

Typ:	Vollautomatischer Plattenspieler mit Quarz-Direktantrieb
Eigenschaften:	Auto-Start/Auto-Zuführung Rückführautomatik Stopautomatik Wiederholtes Abspielen Suchabspiel mit 2 Geschwindigkeiten
Antrieb:	Direktantrieb
Motor:	Kollektorloser Gleichstrommotor
Antriebsregelmethode:	Phasenverriegelte Quarzsteuerung
Plattenteller:	Aluminium-Druckguß Durchmesser 32,5 cm Gewicht 2,5 kg (einschließlich Plattentellermatte)
Plattenteller-Drehzahlen:	33-1/3 und 45 U./min. Automatische Drehzahlwahl (manuelle Wahl möglich)
Drehzahlregelung:	±6% Bereich
Anlaufdrehmoment:	1,6 kg·cm
Beschleunigung:	in 0,9 Sekunden auf 33-1/3 U./min
Drehzahländerung Wegen Lastmoment:	0% Innerhalb 1 kg·cm
Gleichlaufschwankungen:	0,008% WRMS* 0,022% WRMS (JIS C5521) ±0,031% Spitze (IEC 98A bewertet)

*Gemessen anhand von Signalen vom eingebauten Frequenzgenerator des Motorteils.

Rumpeln:	—70 dB (IEC 98A unbewertet) —82 dB (IEC 98A bewertet)

■ Tonarm

Typ:	Linearabtastungs-Tonarm mit 4-Punkt-Kardanaufhängung
Effektive Länge:	23,8 cm
Spurfehlwinkel:	Innerhalb ±0,5°
Effektive Masse:	13 g (einschließlich Tonabnehmer)
Resonanzfrequenz:	10 Hz
Tonarm-Antriebsmotor:	Gleichstrommotor

■ Tonabnehmer

Typ:	Beweglicher Magnet-Stereo-Tonabnehmer
Magnetkreis:	Ganzlamellenkern
Frequenzgang:	10 Hz bis 50 kHz 20 Hz bis 10 kHz ±1 dB
Ausgangsspannung:	2,5 mV bei 1 kHz 5 cm/s. Null-zu-Spitze, lateral [7 mV bei 1 kHz 10 cm/s. Null-zu-Spitze, 45° (DIN 45 500)]
Kanaltrennung:	22 dB bei 1 kHz
Kanalabweichung:	Innerhalb 1,8 dB bei 1 kHz

Empfohlene Endimpedanz:	47 kΩ ~ 100 kΩ	**Auflagekraft-Einstellbereich:**	1,25 ±0,25 g (12,5 ±2,5 mN)
Nachgiebigkeit (dynamisch):	12 × 10^{-6} cm/dyn bei 100 Hz	**Gewicht:**	6 g (nur Tonabnehmer)
		Ersatznadel:	EPS-33ES

Français

CARACTERISTIQUES

Les spécifications sont susceptibles d'être modifiées sans avertissement préalable.
Le poids et les dimensions donnés sont approximatifs.

■ Généralités

Allmentation:	~ 110-120/220-240 V, 50 ou 60 Hz
Consommation:	25 W
Dimensions:	52,6 × 20,5 × 42,5 cm
(L×H×P)	52,6 × 52 × 50 cm (Hauteur maximum lorsque le couvercle protège-poussière est ouvert.)
Poids:	15 kg

■ Plateau de lecture

Type:	Entraînement direct par quartz Platine entièrement automatique
Caractéristiques:	Démarrage automatique/Entrée automatique Retour automatique/Arrêt automatique Audition répétée Audition de recherche sur 2 vitesses
Système d'entraînement:	Entraînement direct
Moteur:	Moteur C.C. sans balai
Système de commande d'entraînement:	Réglage d'accrochage de phase par quartz
Plateau de lecture:	Aluminium moulé sous pression Diamètre 32,5 cm
Vitesses de la platine:	33-1/3 et 45 t/p.m. Sélecteur de vitesse automatique (Sélection manuelle possible)
Réglage d'écart:	Plage de ±6%
Couple de démarrage:	1,6 kg · cm
Caractéristiques d'accélération:	0,9 seconde à 33-1/3 t/p.m.
Changement de vitesse dû à un changement de couple:	0% en deçà de 1 kg · cm
Pleurage et scintillement:	0,008% de valeur efficace* 0,022% de valeur efficace (JIS C5521) ±0,031% de crête (IEC 98A Pondéré)

*Mesuré par l'obtention d'un signal provenant du générateur de fréquences incorporé de l'ensemble du moteur.

Ronflement:	−70 dB (IEC 98A Non pondéré) −82 dB (IEC 98A Pondéré)

■ Bras de lecture

Type:	Bras de lecture à alignement linéaire de type dynemiquement équilibré
Longueur effective:	23,8 cm
Angle d'erreur de piste:	En deçà de ±0,5°
Masse réelle:	13 g (y compris la cellule pick-up)
Fréquence de résonance:	10 Hz
Moteur d'entraînement du bras de lecture:	Moteur C.C.

■ Cellule pick-up

Type:	Cellule pick-up stéréo à aimant mobile
Circuit magnétique:	Noyau entièrement feuilleté
Réponse en fréquence:	10 Hz à 50 kHz 20 Hz à 10 kHz ±1 dB
Tension de sortie:	2,5 mV à 1 kHz; 5 cm/s., zéro à vitesse latérale de crête (7 mV à 1 kHz; 10 cm/s., zéro à vitesse 45° de crête [DIN 45 500])
Séparation des canaux:	22 dB à 1 kHz
Equilibrage des canaux:	En deçà de 1,8 dB à 1 kHz
Impédance de charge recommandée:	47 kΩ ~ 100 kΩ
Elasticité (dynamique):	12 × 10^{-6} cm/dyne à 100 Hz
Plage de la force verticale d'appui:	1,25 ±0,25 g (12,5 ±2,5 mN)
Poids:	6 g (cellule seule)
Pointe de lecture de remplacement:	EPS-33ES

ESPECIFICACIONES

Las especificaciones quedan sujetas a cambios sin aviso previo.
El peso y las dimensiones indicados son aproximados.

■ En general

Alimentación de corriente:	—110-120/220-240 V, 50 ó 60 Hz
Consumo de corriente:	25 W
Dimensiones: (Ancho×Alto×Prof.)	52,6 × 20,5 × 42,5 cm Altura máxima cuando la tapa contra el polvo está abierta. 52,6 × 52 × 50 cm
Peso:	15 kg

■ Sección del plato giratorio

Tipo:	Plato giratorio totalmente automático con accionamiento directo por cuarzo.
Ventajas:	Arranque/descenso automáticos Retorno automático Parada automática Ejecución repetida Ejecución con búsqueda con 2 velocidades
Método de accionamiento:	Accionamiento directo
Motor:	Motor de C.C. sin escobillas
Método de control de accionamiento:	Control enclavado de fase de cuarzo
Platillo del palto giratorio:	Aluminio fundido 32,5 cm de diámetro
Peso:	2,5 kg (incluyendo la almohadilla del plato giratorio)
Velocidades del plato giratorio:	33-1/3 y 45 rpm Selección automática de la velocidad (También posibilidad de seleccionar a mano)
Control de altura de sonido:	En un ámbito aproxim. de 6%
Par de arranque:	1,6 kg · cm
Características de establecimiento:	0,9 de segundo a 33-1/3 rpm
Cambio de velocidad debido al par de carga:	0% en menos de 1 kg · cm
Ululaciones y trémolo:	0,008% WRMS* 0,022% WRMS (JIS C5521) ±0,031% cresta (IEC 98A Ponderado)

*Medido obteniendo una señal proveniente del generador de frecuencias incorporado del conjunto del motor.

Ruido de rodadura:	—70 dB (IEC 98A No ponderado) —82 dB (IEC 98A Ponderado)

■ Sección del brazo sonoro

Tipo:	Brazo sonoro de seguimiento lineal con suspensión cardánica de 4 pivotes
Longitud efectiva:	23,8 cm
Angulo de error de seguimiento:	Inferior a 0,5° aproxim.
Masa efectiva:	13 g (incluyendo el cartucho)
Frecuencia de resonancia:	10 Hz
Motor de accionamiento del brazo sonoro:	Motor de corriente continua

■ Sección del cartucho

Tipo:	Cartucho estereofónico de imán móvil
Circuito magnético:	Núcleo totalmente laminado
Respuesta de frecuencia:	10 Hz a 50 kHz 20 Hz a 10 kHz ±1 dB
Voltaje de salida:	2,5 mV a 1 kHz, velocidad lateral de cero a cresta de 5 cm/s. [7 mV a 1 kHz, velocidad de 45° de cero a cresta de 10 cm/s. (DIN 45 500)]
Separación de canales:	22 dB a 1 kHz
Equilibrio de canales:	Inferior a 1,8 dB a 1 kHz
Impedancia de carga. recomendada:	47 kΩ a 100 kΩ
Elasticidad (dinámica):	12×10^{-6} cm/dina a 100 Hz
Radio de presión de la aguja:	1,25 ±0,25 g (12,5±2,5 mN)
Peso:	6 g (cartucho solamente)
Replacement stylus:	EPS-33ES

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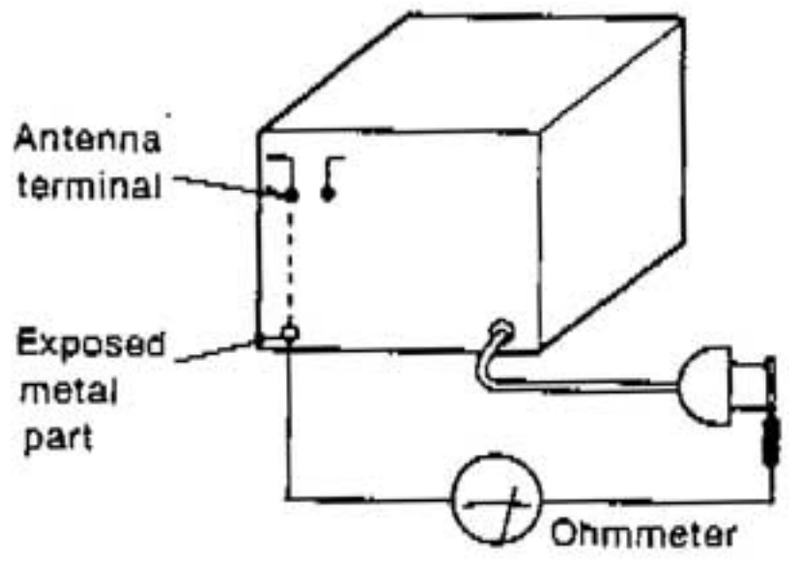
■ SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

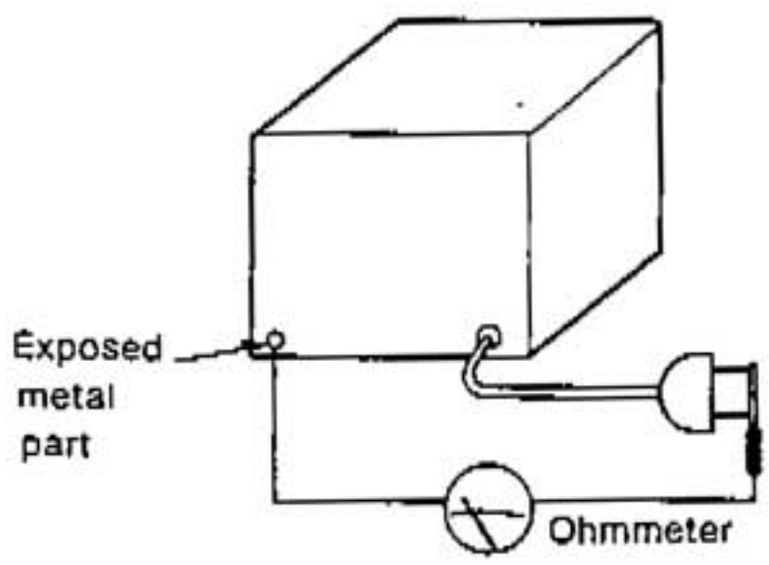
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ

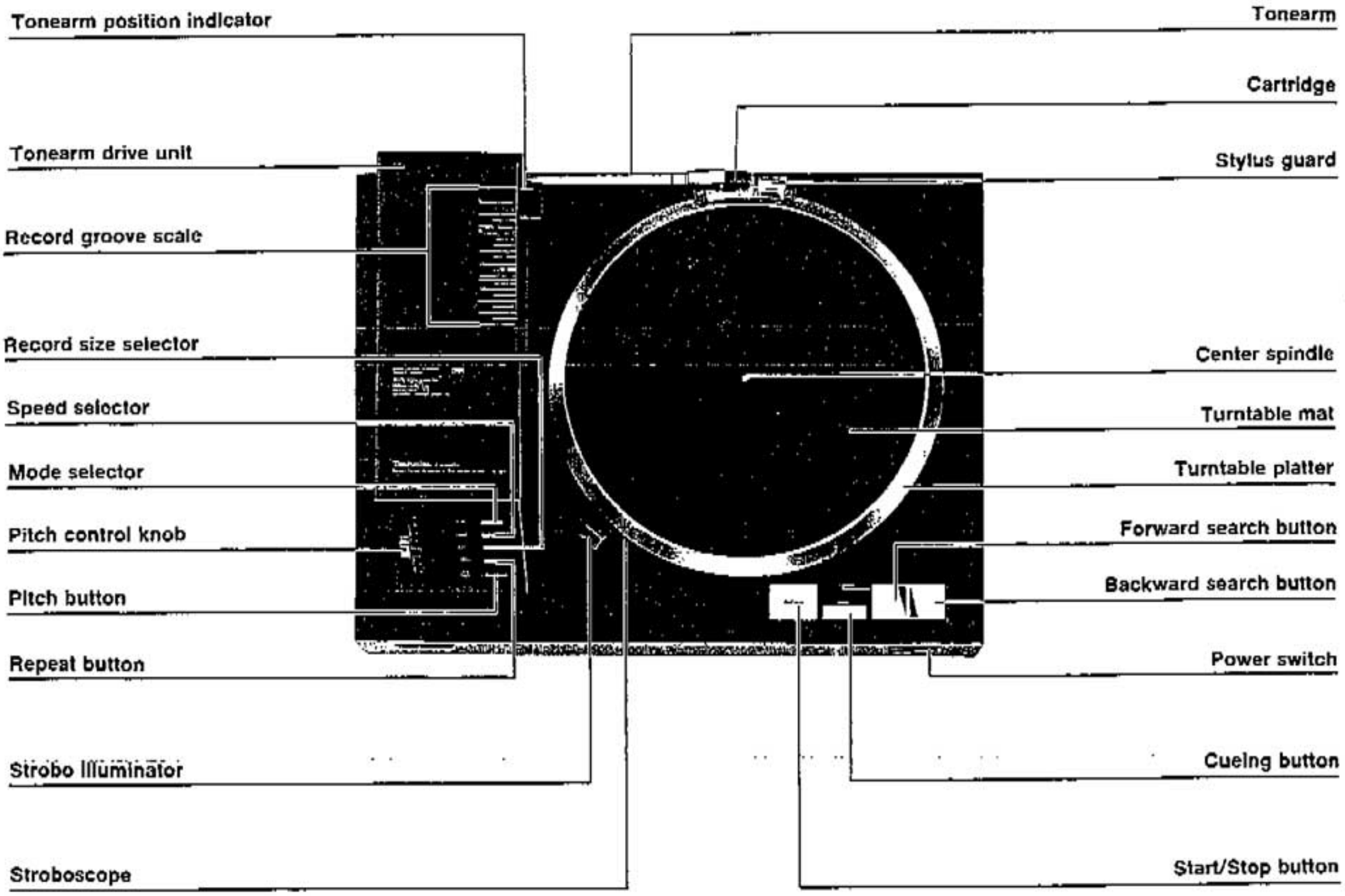


(Fig. B)

Resistance = Approx ∞

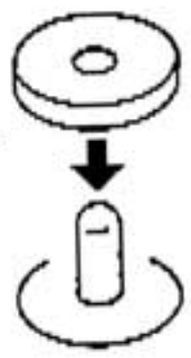
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ LOCATION OF CONTROLS



■ OPERATION

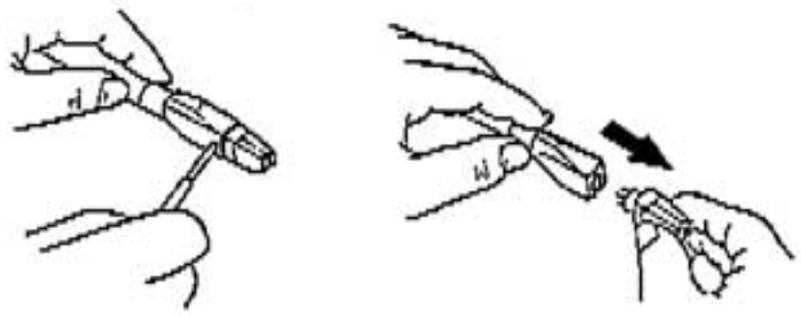
Procedure	Remarks/Notes
■ To stop record play During the auto mode • Press the start/stop button. **During the manual mode** • Press the backward search button to return the tonearm to the starting position.	• The tonearm returns to the starting position and the platter stops rotating. • If you mistakenly press the start/stop button, the platter will stop rotating, causing the stylus to stop in the record groove, possibly damaging the stylus and record.
■ To briefly interrupt record play • Press the cueing button • Press again to resume record play.	• The tonearm rises.

Procedure	Remarks/Notes
■ Automatic operation **For LP records (30 cm, 33-1/3 rpm)**	
1. Place a record on the platter. 2. Remove the stylus cover. 3. Press the power switch to switch power on.	• Be careful not to touch the stylus itself. • The speed is automatically set to 33-1/3 and the record size to 30 cm. Wait about two seconds after switching power on before using any controls.
4. Press the start/stop button. (Record play can also be started by pressing the cueing button. This is possible only for automatic play of 30 cm LP records.)	• Record play begins.
After the play has finished...	
5. Switch power off if the unit is not going to be used for a while.	• When the end of the record is reached, the tonearm returns to the starting position and the platter stops rotating. • If the unit is not going to be used for a long time, replace the stylus cover.
■ For 45-rpm 17 cm records Perform steps 1, 2 and 3 of the above section first.	
1. Place the 45-rpm adapter over the center spindle. 2. Press the speed selector. 3. Press the record size selector.	 • Speed indication switches from 33 to 45. • Size indication switches from 30 to 17.
4. Press the start/stop button. After the play has finished... Perform step 5 of the automatic operation section.	• Record play begins. • When the end of the record is reached, the tonearm returns to the starting position and the platter stops rotating.
■ Manual operation	
1. Press the mode selector. 2. Press the speed selector to set the correct speed. 3. Press the record size selector to set the correct record size.	Indication switches from auto to manual.
4. Press the start/stop button. 5. Hold down the forward search button. (If the tonearm goes too far, use the backward search button to return to the desired location.) 6. Release the forward search button when the tonearm has reached the desired location. 7. Press the cueing button. After the play has finished... Perform step 5 of the automatic operation section.	• The platter begins rotating. • The tonearm moves forward slowly at first (about 3.2 mm) and then more quickly. • The tonearm lowers and record play begins. • When the end of the record is reached, the tonearm returns to the starting position and the platter stops rotating.
■ Repeat play (only for 30 cm and 17 cm records)	
• Press the repeat button before or during record play.	• The repeat indicator lights to show the repeat mode has been activated. The record is now played repeatedly until the repeat mode is cancelled.
• Press the repeat button again to cancel repeat play.	• The repeat indicator goes out. The repeat mode can also be cancelled by pressing the start/stop button.

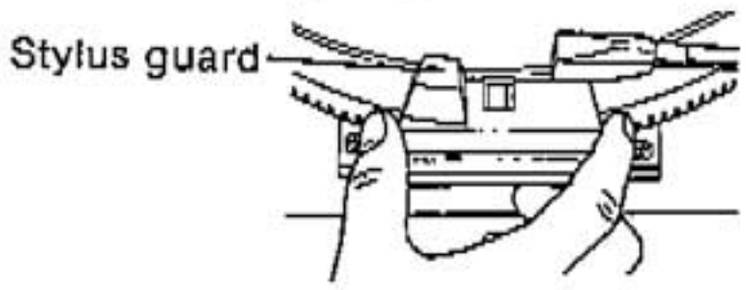
■ DISASSEMBLY INSTRUCTIONS

• How to remove the drive circuit P.C.B.

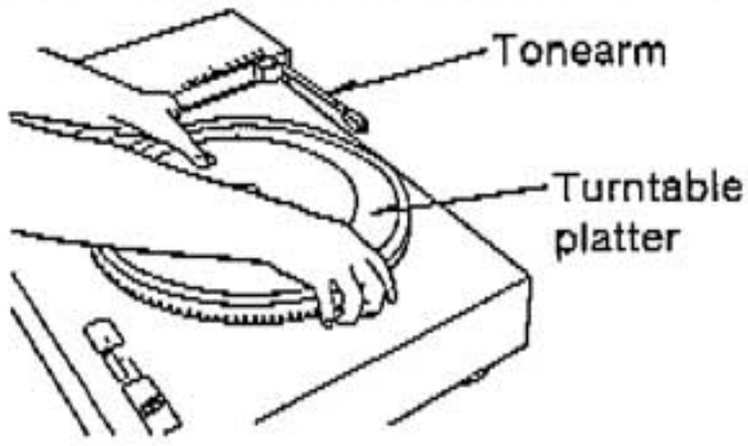
1. Remove the cartridge.



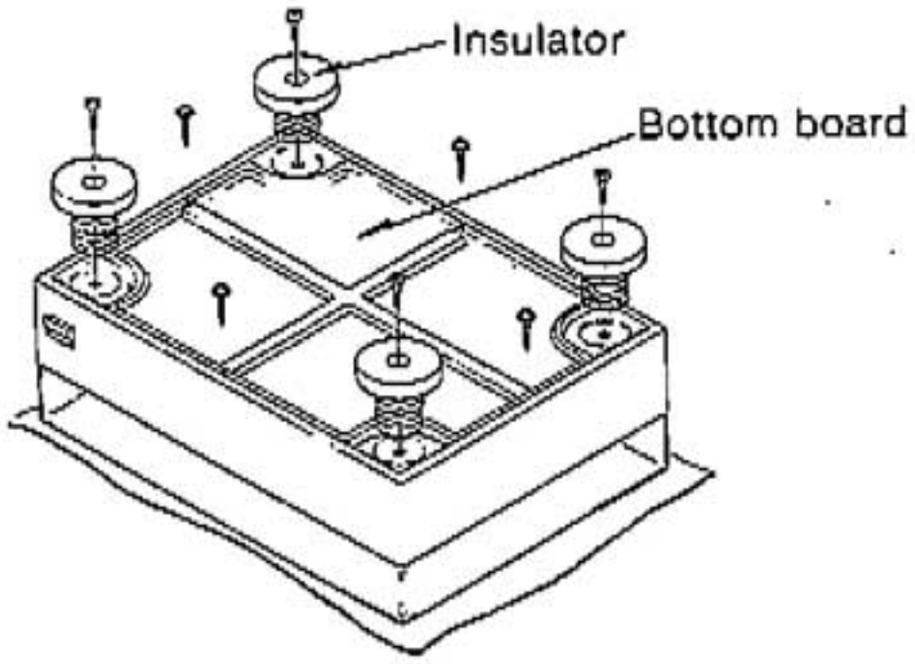
2. Remove the stylus guard.



3. Remove the turntable platter.
   * Lift it up with care not to touch the tonearm.

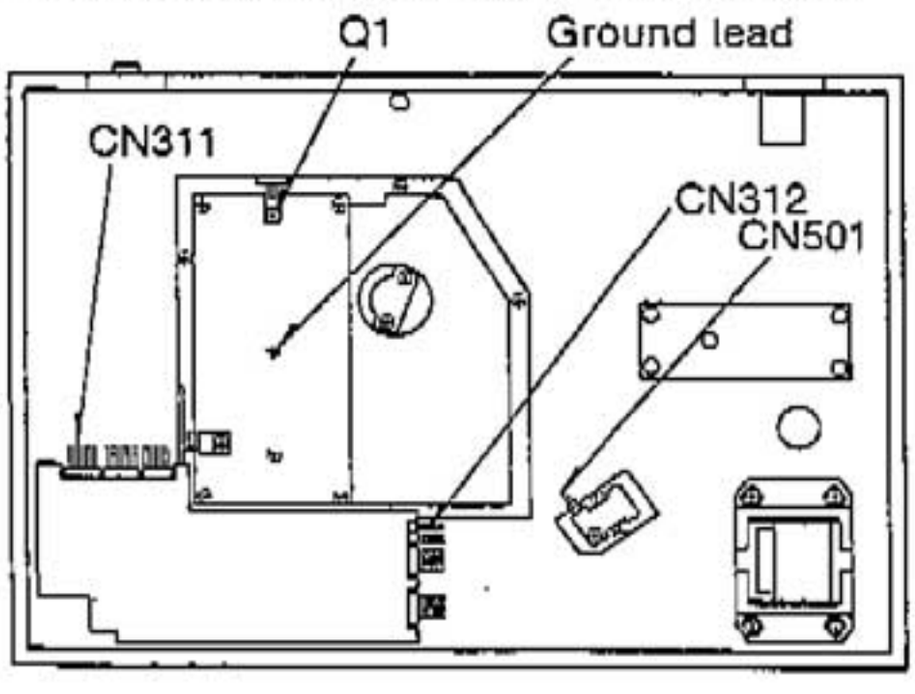


4. Remove the bottom board. (4 setscrews)
   * Drive circuit can be checked without removing the bottom board.

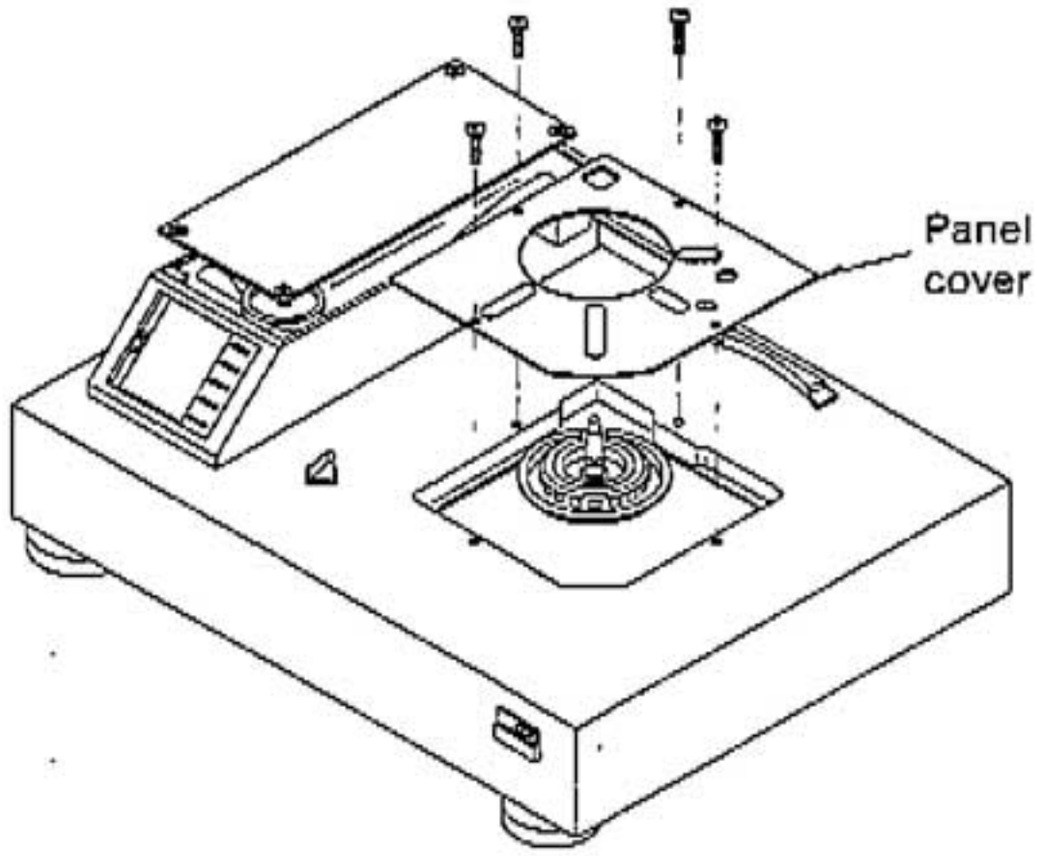


   Insulator can be removed by removing 4 setscrews.
   * Note that the front and rear insulators are different.

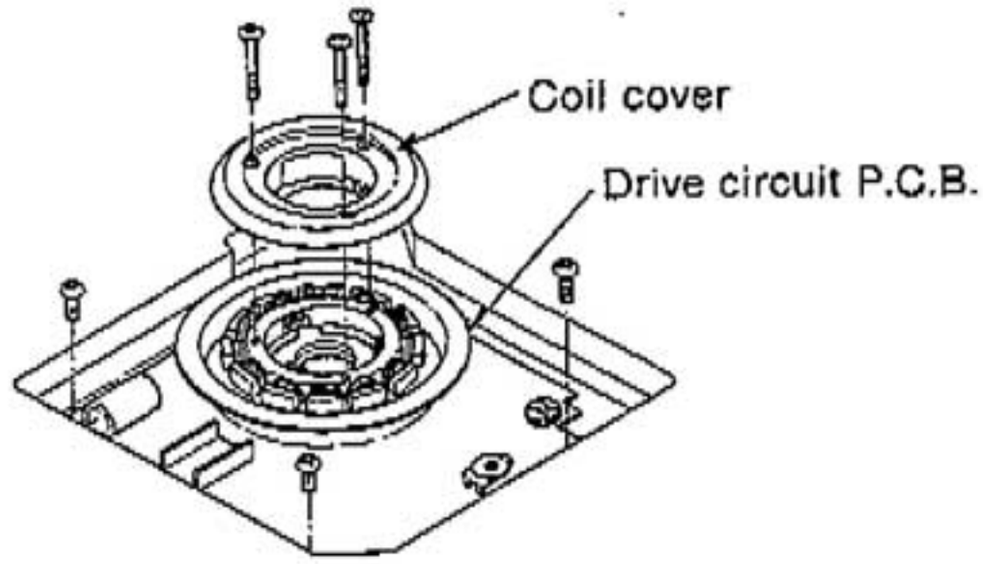
5. Remove the connector, transistor and setscrew of grounding lead on the control P.C.B.
   * Do not remove these connector, transistor and ground lead when checking the drive circuit.



6. Remove the panel cover. (4 setscrews)
   * Drive circuit can be checked in this condition.

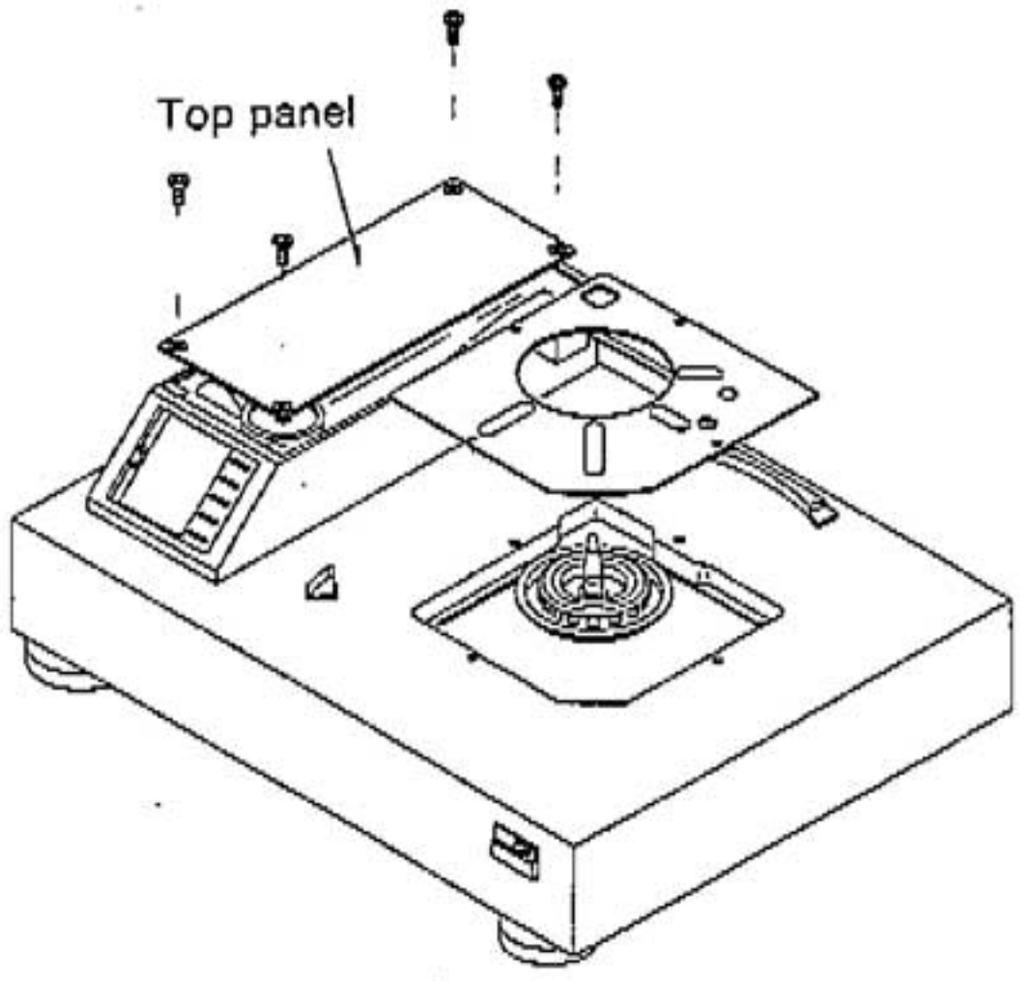


7. Remove the 6 setscrews of drive circuit P.C.B.

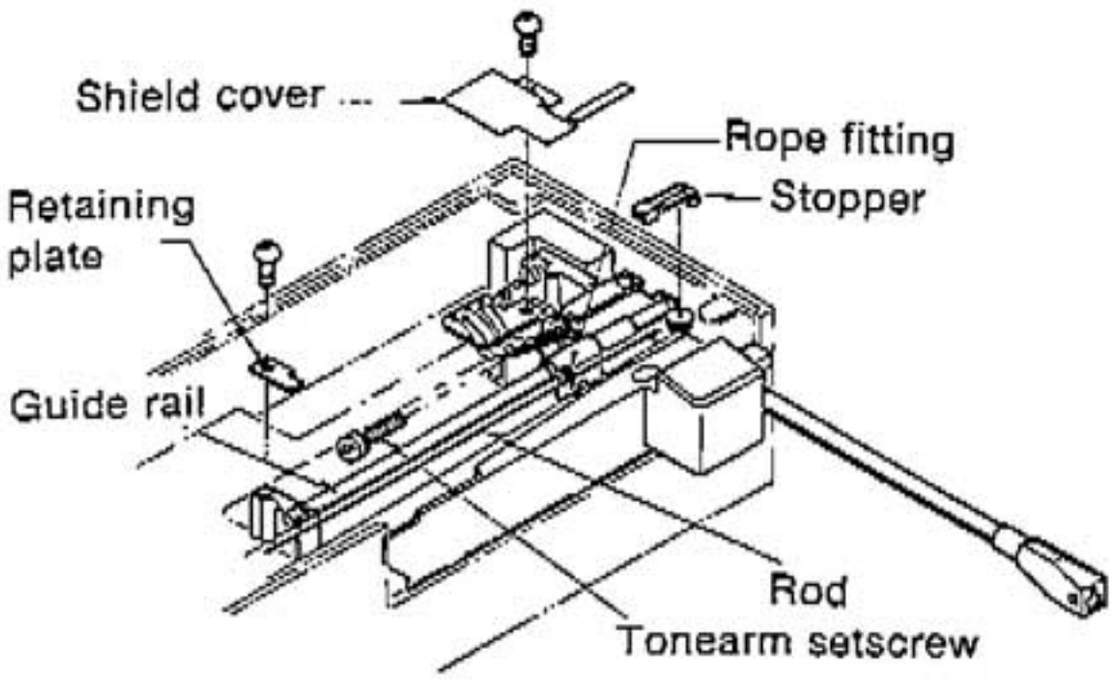


• How to remove the tonearm

1. Remove the top panel of arm drive unit. (4 setscrews)

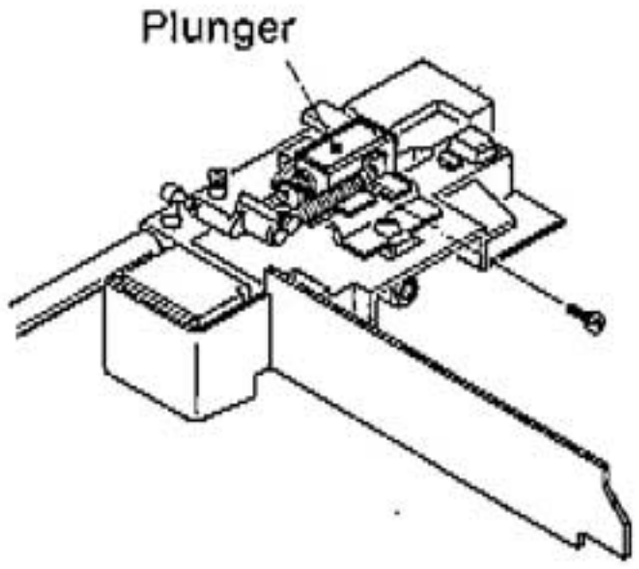


2. Remove the shield cover and unsolder the output lead.
3. Turn the drive motor by hand to shift the tonearm inside.
4. To remove the tonearm only, remove the setscrew.
5. Remove the rope fitting and the retaining plate.
6. Remove the stopper and rest switch rod.
7. Remove the tonearm unit from the guide rail.



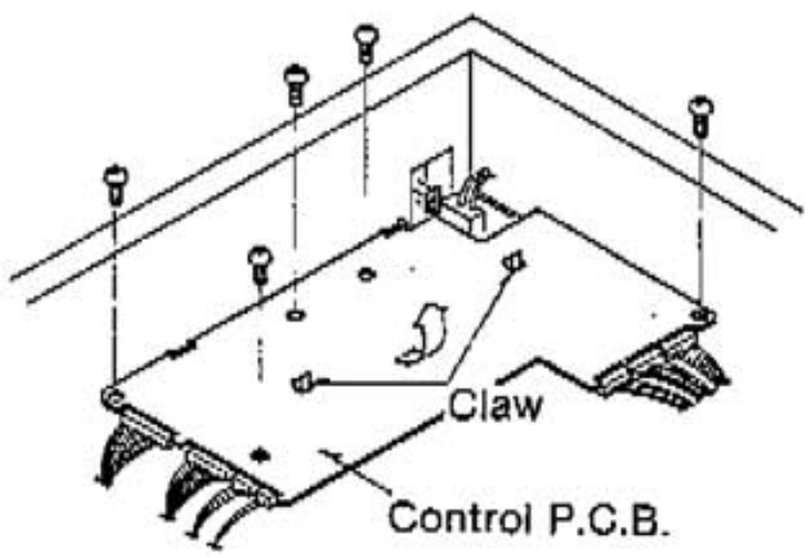
• How to remove the cueing plunger

1. Remove the tonearm unit.
2. Remove the plunger setscrew.

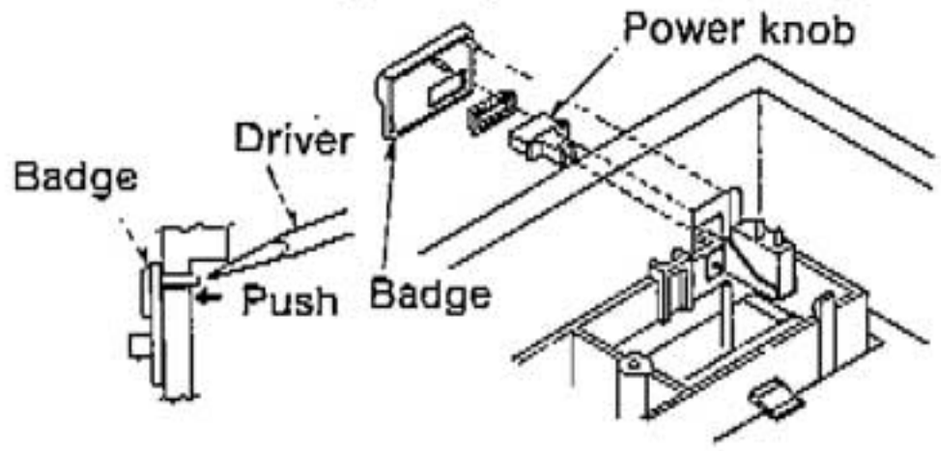


• How to remove the control button

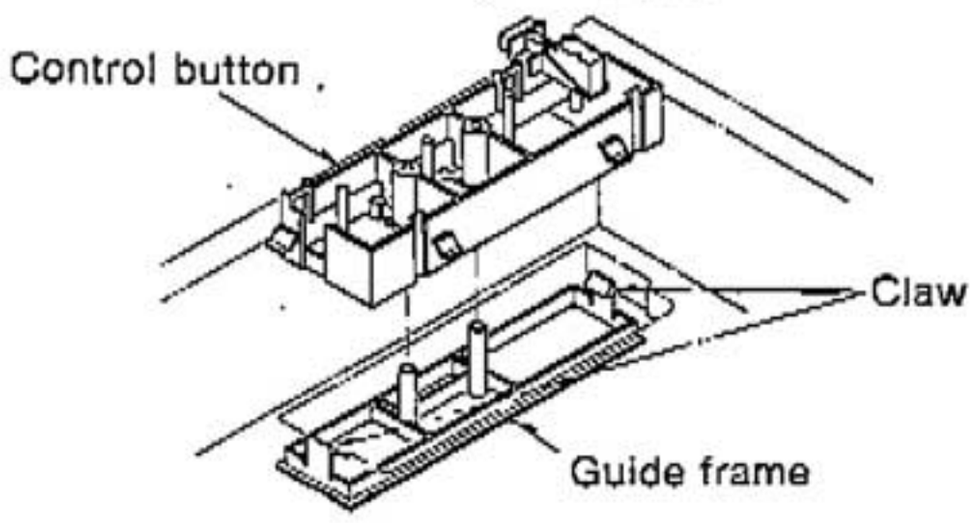
1. Remove the bottom board.
2. Remove the control P.C.B. setscrews. (5 setscrews)
3. Unfasten the 2 craws.



4. Remove the badge and power switch knob.

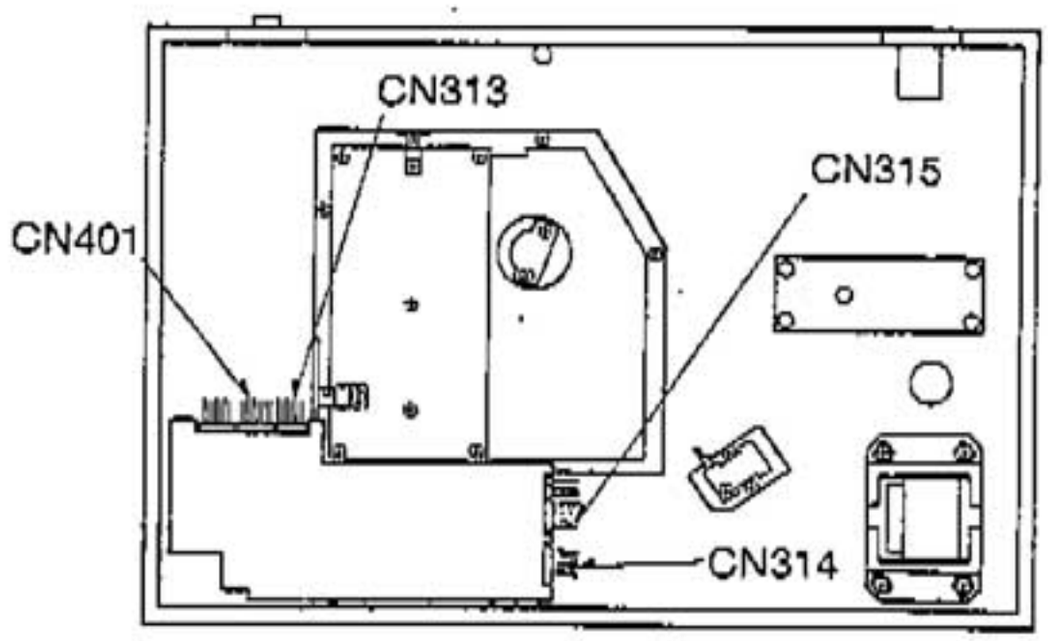


5. Unfasten the claw of guide frame.

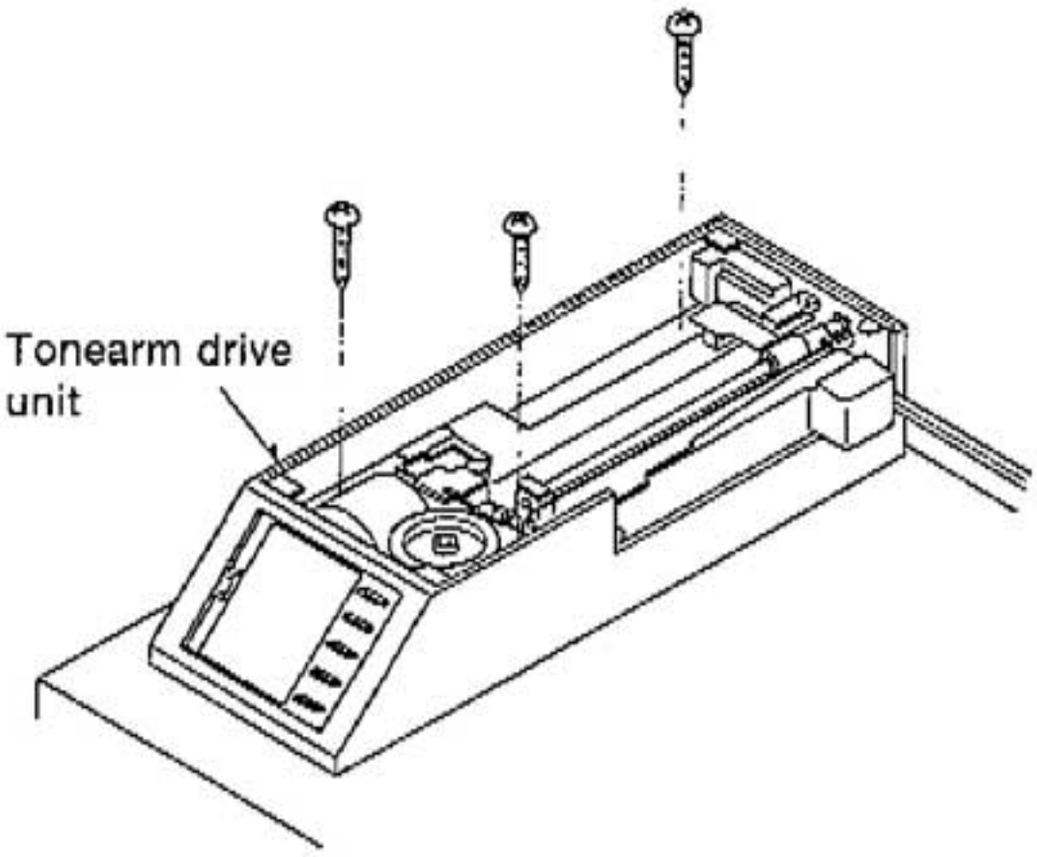


• How to remove the switch P.C.B.

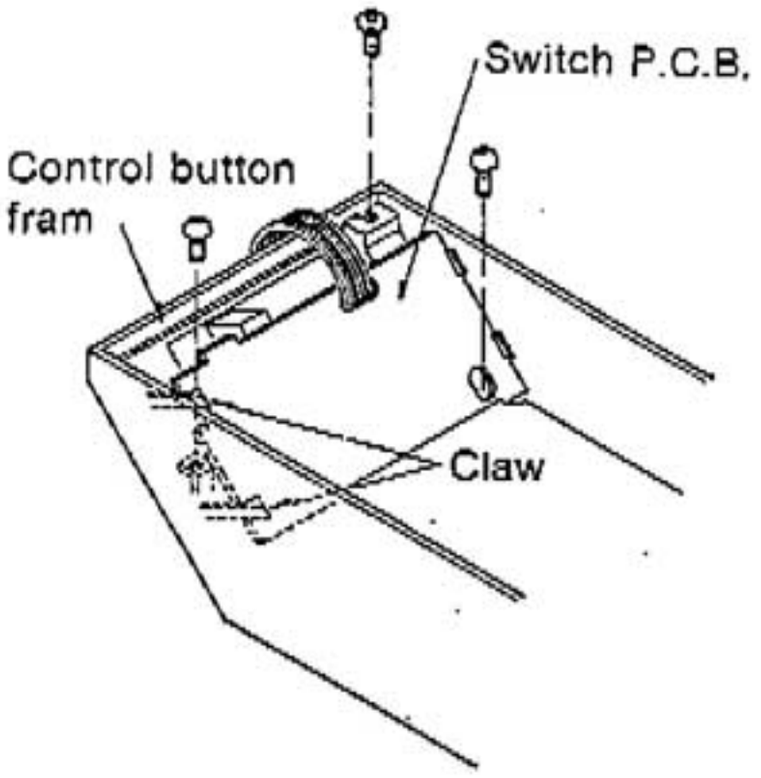
1. Remove the bottom board.
2. Remove each connector.



3. Remove the panel of arm drive unit.
4. Remove the setscrews. (3 setscrews)



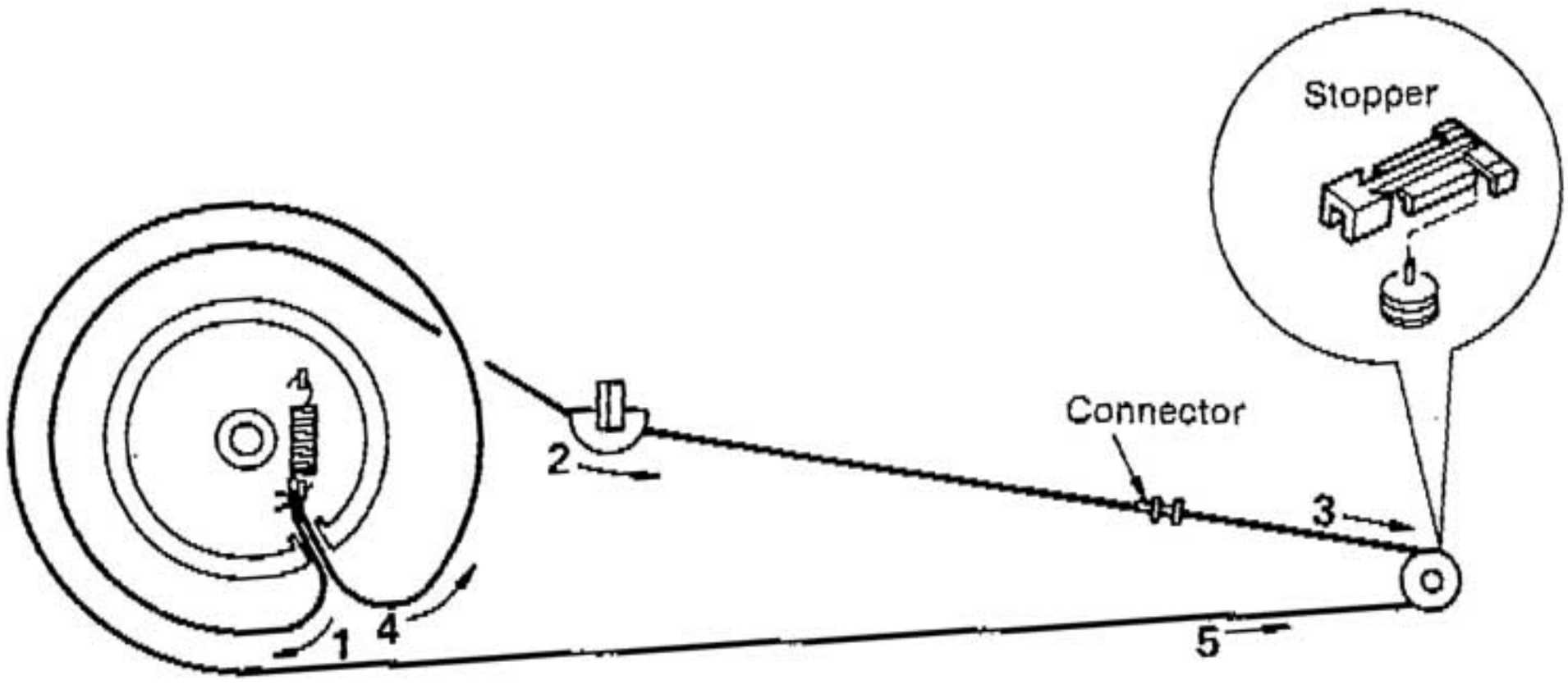
5. Remove the control button frame setscrews and unfasten the claws.



■ HOW TO SET THE TONEARM DRIVE ROPE

When setting the rope, follow the procedure given below.

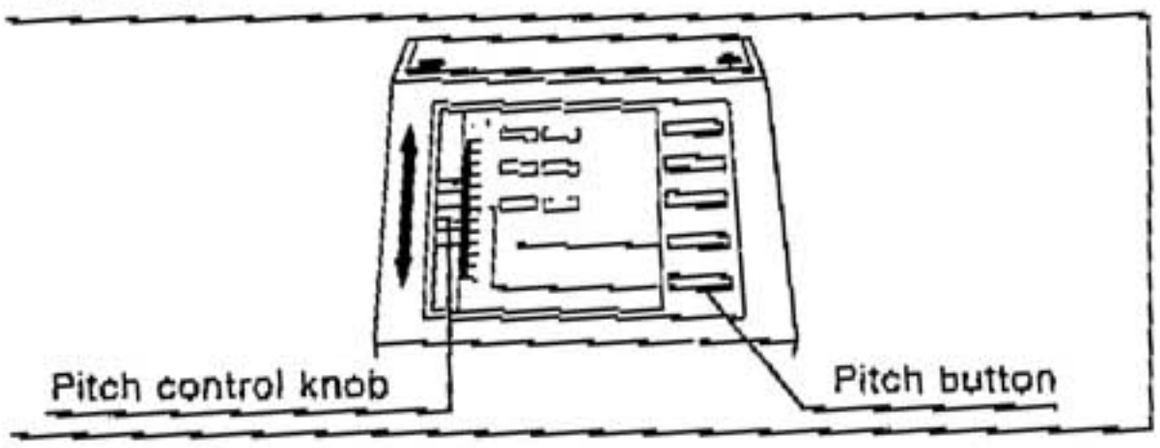
1. Remove the top panel of tonearm drive unit.
2. Remove the stopper.
3. Set the rope in the order of 1 ~ 5.
4. Fit the rope connector to the tonearm.
5. Set the roller cover and turn the worm gear by hand to see that the tonearm moves.



■ PITCH ADJUSTMENT

his unit employs a quartz linear synthesizer pitch control ystem to permit continuous adjustment of pitch by up to :6% from the rated platter speed while still maintaining uartz control.

. Press the pitch button (pitch indicator goes out).
. Slide the pitch control knob up or down to the desired position.

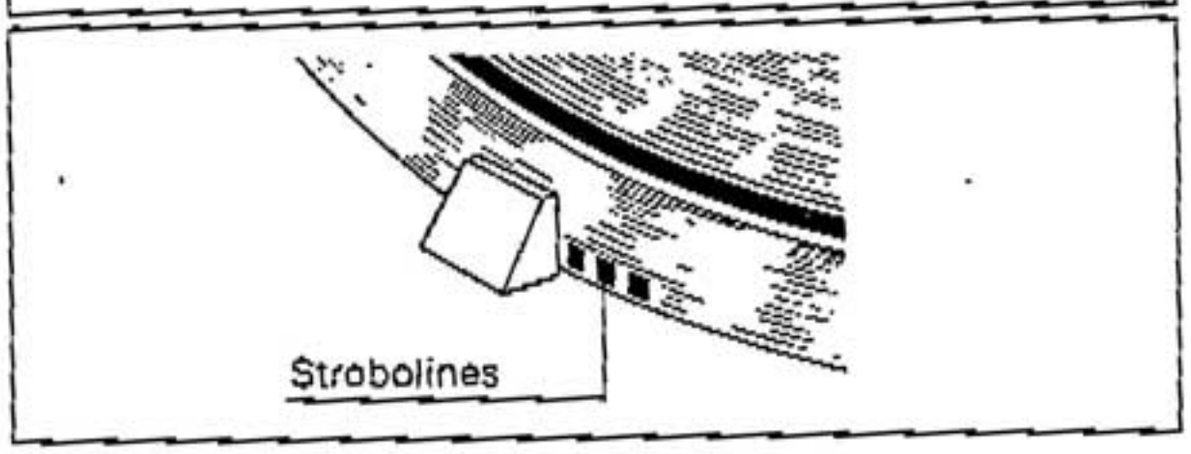


/hen the pitch control knob is moved in the + direction, ıe strobolines will appear to be moving forward. When ıoved in the — directions, the strobolines will appear to e moving backward.

- Set the pitch control knob to 0 to obtain precisely the rated platter speed (33-1/3 or 45 rpm).
- When the pitch function is not longer needed, press the pitch button again (pitch indicator lights).

Notes:

- The strobolines appear to be moving even when the platter is rotating at a rated speed when viewed under fluorescent lighting.
- Standard record playing should always be done with the pitch indicator out.



■ MEASUREMENTS AND ADJUSTMENT — English

- **Instruments used**
  1. Oscilloscope
  2. Frequency counter
  3. DC voltmeter
  4. 30 cm record
  5. Screwdriver

Step	Item	Preparations	Portion adjusted	Adjustment procedure
1	**Brake**	1. Turn power switch "on". 2. Set mode selector to "manual". 3. Set speed selector to "33". 4. Press start button.	VR201 **(Fig. 1)**	• Adjust VR201 so that turntable platter stops within the angle of 90° ~ 120° when the stop button is pressed during rotation. - Remove the turntable mat. It can be adjusted from the hole in the turntable platter.
2	**Reference frequency**	1. Remove the turntable platter and panel cover. 2. Connect the frequency counter between TP27 and GND. **(Fig. 1)** 3. Turn power switch "on". 4. Set pitch control knob to "0" and press pitch button so that pitch indicator goes out.	VR301 **(Fig. 1)**	• Adjust VR301 so that the frequency counter shows 262.075 ~ 262.085 kHz.
3	**Start position**	1. Put 30 cm record on. 2. Turn power switch "on". 3. Set mode selector to "auto". 4. Set size selector to "30". 5. Press start button.	Start position adjust screw **(Fig. 2)**	▪ If stylus moves down too much inside, adjust it by turning the screw.
4	**Clock frequency**	1. Remove bottom board. 2. Connect IC312 pins ⑦ ~ ⑩ to pin ㉗ (+5 V). 3. Connect oscilloscope to IC312 pin ④.	VR311 **(Fig. 3)**	1. Turn power switch "on". 2. Adjust VR311 so that output waveform cycle is 33 ±1 μs.
5	**Servo gain and offset voltage**	1. Remove top panel and pointer cover of arm drive unit. 2. Remove bottom board and connect DC voltmeter to CN313 pin ③ and ground.	VR501 **(Fig. 4)** Offset voltage adjust screw **(Fig. 4)**	1. Turn power switch "on". 2. Set mode selector to "manual". 3. Press the search button to move tonearm inside. 4. Completely shift the tonearm clockwise. 5. Adjust VR501 so that output voltage is 6.0 V. (Servo gain adjustment) 6. Adjust tonearm to the center position. Make sure that output voltage is 3.0 V. 7. If the voltage is not 3.0 V, turn an adjust screw. (Offset voltage adjustment)

■ MESSUNGEN UND JUSTIERUNGEN — Deutsch

- **Zu verwendende Instrumente**
  1. Oszilloskop
  2. Frequenzzähler
  3. Gleichstrom-Voltmeter
  4. 30 cm-Platte
  5. Schraubenzieher

Schritt	Abgleich	Vorbereitungen	Zu justierende Punkte	Justiermethode
1	**Bremse**	1. Den Netzschalter auf "on" stellen. 2. Den Betriebsart-Wahlschalter auf "manual" stellen. 3. Den Drehzahl-Wahlschalter auf "33" stellen. 4. Die Starttaste drücken.	VR201 **(Abb. 1)**	• VR201 so justieren, daß der Plattenteller innerhalb 90° ~ 120° stoppt, wenn die stoptaste bei der Drehung gedrückt wird. - Die Plattentellerauflage abnehmen. Die Justierung kann durch das Loch im Plattenteller vorgenommen werden.
2	**Referenz-frequenz**	1. Den Plattenteller und die Abdeckplatte entfernen. 2. Den Frequenzzähler zwischen TP27 und Masse anschließen. **(Abb. 1)** 3. Den Netzschalter auf "on" stellen. 4. Den Drehzahlregler auf "0" stellen und die Drehzahltaste drücken, so daß die Drehzahl-anzeige erlöscht.	VR301 **(Abb. 1)**	• VR301 so justieren, daß der Frequenzzähler 262,075 ~ 262,085 kHz anzeigt.

3	**Startposition**	1. Eine 30 cm-Platte auflegen. 2. Den Netzschalter auf "on" stellen. 3. Den Betriebsart-Wahlschalter auf "auto" stellen. 4. Den Plattengröße-Wahlschalter auf "30" stellen. 5. Die Starttaste drücken.	Startposition-Justierschraube **(Abb. 2)**	• Falls die Nadel zu weit innen absenkt, ist durch Drehen der Schraube zu justieren.
4	**Taktgeber-Frequenz**	1. Bodenabdeckung entfernen. 2. Die Stifte ⑦ ~ ⑯ von IC312 an Stift ㉗ (+5 V) anschließen. 3. Oszilloskop an Stift ④ von IC312 anschließen.	VR311 **(Abb. 3)**	1. Den Netzschalter auf "on" stellen. 2. VR311 so justieren, daß der Zyklus der Ausgangswellenform 33 ± 1 μs beträgt.
5	**Servo-Verstärkung und Offset-spannung**	1. Die obere Abdeckung und Zeigerabdeckung der Tonarm-Antriebsbox entfernen. 2. Die Bodenabdeckung entfernen und Gleichstrom-Voltmeter an Stift ③ von CN313 und an Masse anschließen.	VR501 **(Abb. 4)** Offsetwinkel-Justierschraube **(Abb. 4)**	1. Den Netzschalter auf "on" stellen. 2. Den Betriebsart-Wahlschalter auf "manual" stellen. 3. Die Suchlauftaste drücken, um den Tonarm nach innen zu bewegen. 4. Den Tonarm vollständig im Uhrzeigersinn bewegen. 5. VR501 so justieren, daß die Ausgangsspannung 6,0 V beträgt. (Servo-Verstärkungs-Justierung) 6. Den Tonarm in die Mittenposition Justieren. Überprüfen, daß die Ausgangsspannung 3,0 V beträgt. 7. Falls die Spannung nicht 3,0 V beträgt, durch Drehen der Schraube justieren. (Offsetspannug-Justierung)

■ MESURAGES ET RÉGLAGES — Français

- **Equipement utilisé**

1. Oscilloscope
2. Compteur de fréquences
3. Voltmètre à C.C.
4. Disque de 30 cm
5. Tournevis

Etape	Article	Préparatifs	Partie à régler	Procédure de réglage
1	**Frein**	1. Tourner l'interrupteur d'alimentation sur "on" (en circuit). 2. Régler le sélecteur de mode sur "manual". 3. Régler le sélecteur de vitesse sur "33". 4. Appuyer sur la touche de mise en marche.	VR201 **(Fig. 1)**	• Ajuster VR201 de telle sorte que le plateau de lecture s'arrête en deçà d'un angle de 90° ~ 120° lorsque l'on appuie sur la touche d'arrêt pendant la rotation. • Retirer le tapis de la platine. Il peut être ajusté à partir de l'orifice se trouvant dans le plateau de lecture.
2	**Fréquence de référence**	1. Retirer le plateau de lecture et le panneau de protection. 2. Raccorder le compteur de fréquences entre TP27 et la masse (GND). **(Fig. 1)** 3. Tourner l'interrupteur d'alimentation sur "on" (en circuit). 4. Régler la manette de réglage d'écart sur "0" et appuyer sur la touche d'écart de telle sorte que l'indicateur d'écart s'éteigne.	VR301 **(Fig. 1)**	• Ajuster VR301 de telle sorte que le compteur de fréquences indique 262,075 ~ 262,085 kHz.
3	**Position de démarrage**	1. Installer un disque de 30 cm. 2. Tourner l'interrupteur d'alimentation sur "on" (en circuit). 3. Régler le sélecteur de mode sur "auto". 4. Régler le sélecteur de diamètre des disques sur "30". 5. Appuyer sur la touche de mise en marche.	Vis de réglage du positionnement de démarrage. **(Fig. 2)**	• Si la pointe de lecture s'abaisse trop à l'intérieur, l'ajuster en tournant la vis.
4	**Fréquence de rythme**	1. Retirer la plaque de la face inférieure. 2. Raccorder les broches ⑦ ~ ⑯ IC312 à la broche ㉗ (+5 V). 3. Brancher l'oscilloscope à la broche ④ IC312.	VR311 **(Fig. 3)**	1. Tourner l'interrupteur d'alimentation sur "on" (en circuit). 2. Ajuster VR311 de telle sorte que le cycle de la forme d'onde de sortie soit de 33 ±1 μs.

ficatlon nique et n de age	1. Retirer le panneau supérieur et la coiffe protectrice de l'aiguille du boîtier d'entraînement du bras. 2. Retirer la plaque de la face inférieure et raccorder le voltmètre à C.C. à la broche ⑪ CN313 et à la masse.	VR501 **(Fig. 4)** Vis de réglage de tension de décalage **(Fig. 4)**	1. Tourner l'interrupteur d'alimentation sur "on" (en circuit). 2. Régler le sélecteur de mode sur "manual". 3. Appuyer sur la touche de recherche pour faire déplacer le bras de lecture à l'intérieur. 4. Décaler entièrement le bras de lecture dans le sens des aiguilles d'une montre. 5. Ajuster VR501 de telle sorte que la tension de sortie soit de 6,0 V. (Ajustement de l'amplification servomécanique.) 6. Disposer le bras de lecture vers la position centrale. S'assurer que la tension de sortie soit de 3,0 V. 7. Si la tension n'est pas de 3,0 V, tourner la vis de réglage. (Tension de décalage)

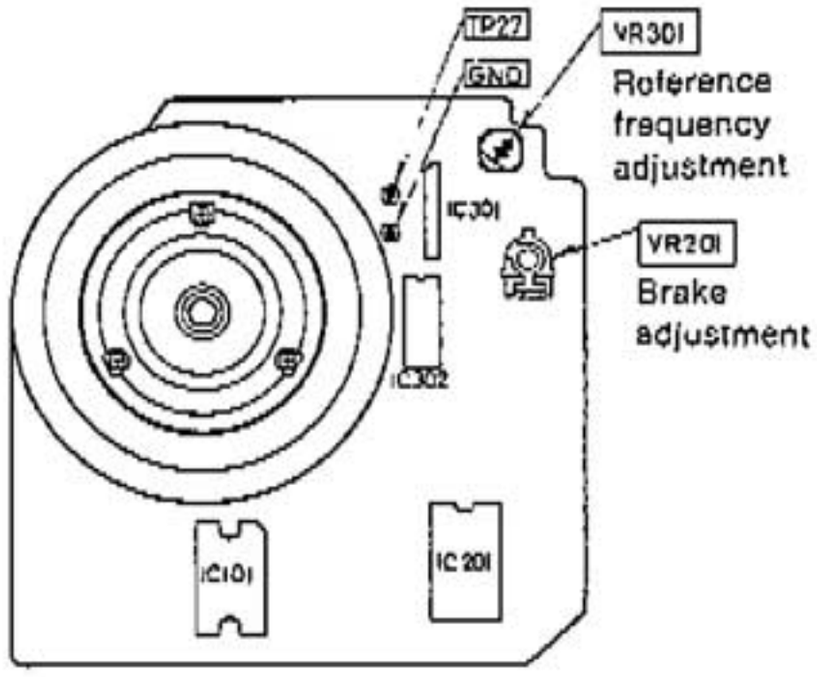
CIONES Y AJUSTE — Español

entos usados

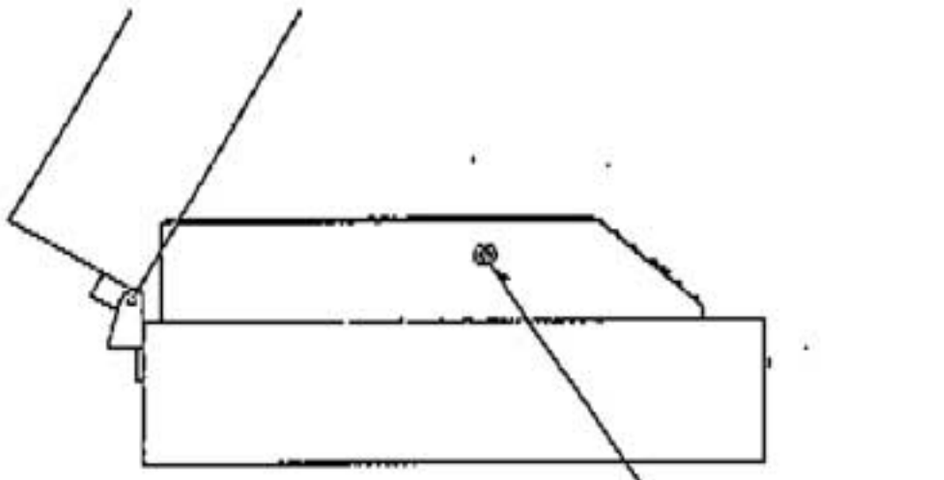
scopio
ncímetro
etro de CC
4. Disco de 30 cm
5. Destornillador

lcm	Preparaciones	Porción ajustada	Procedimiento de ajuste
	1. Conectar el interruptor de alimentación. 2. Poner el selector de modalidad en "manual". 3. Poner el selector de velocidad en "33". 4. Apretar el botón de arranque.	VR201 **(Fig. 1)**	• Ajustar VR201 de manera que el mecanismo del plato giradiscos se para dentro de un ángulo de 90° ÷ 120° cuando se aprieta el botón de parada durante la rotación. • Remover la esterilla del plato giradiscos. Puede ajustarse desde el agujero en el mecanismo del plato giradiscos.
encia de ncia	1. Remover el mecanismo del plato giradiscos y la cubierta del panel. 2. Conectar el frecuencímetro entre TP27 y Tierra (GND) **(Fig. 1)** 3. Conectar el interruptor de alimentación. 4. Poner la perilla de control de saltos de aguja en "0" y apretar el botón de tono de manera que el indicador de tono se apaga.	VR301 **(Fig. 1)**	• Ajustar VR301 de manera que el frecuencímetro muestra 262,075 ~ 262,085 kHz.
lón de que	1. Colocar el disco de 30 cm 2. Conectar el interruptor de alimentación. 3. Poner el selector de modalidad en "auto". 4. Poner el selector de tamaño en "30". 5. Apretar el botón de arranque.	Tornillo de ajuste de posición de arranque **(Fig. 2)**	• Si la aguja cae demasiado adentro, ajustarla girando el tornillo.
encia de	1. Remover la placa inferior. 2. Conectar pernos ⑦ ~ ⑩ de IC312 a perno ㉗ (+5 V). 3. Conectar osciloscopio a perno ④ de IC312.	VR311 **(Fig. 3)**	1. Conectar el interruptor de alimentación. 2. Ajustar VR311 de manera que el ciclo de forma de onda de salida sea 33 ±1 μs.
ncia y e de ación	1. Remover el panel superior y cubierta de aguja de caja de accionamiento de brazo. 2. Remover la placa inferior y conectar voltímetro de CC a perno ⑪ de CN313 y tierra.	VR501 **(Fig. 4)** Tornillo de ajuste de voltaje de desviación (fonocaptor) **(Fig. 4)**	1. Conectar el interruptor de alimentación. 2. Poner el selector de modalidad en "manual". 3. Apretar el botón de exploración para mover el interior del brazo de fonocaptor. 4. Mover completamente el brazo de fonocaptor a la derecha. 5. Ajustar VR501 de manera que el voltaje de salida sea 6,0 V. (Ajuste de servoganancia) 6. Ajustar el brazo de fonocaptor a la posición central. Asegurarse de que el voltaje de salida sea 3,0 V. 7. Si el voltaje no es 3,0 V, girar un tornillo de ajuste. (Ajuste de voltaje de desviación)

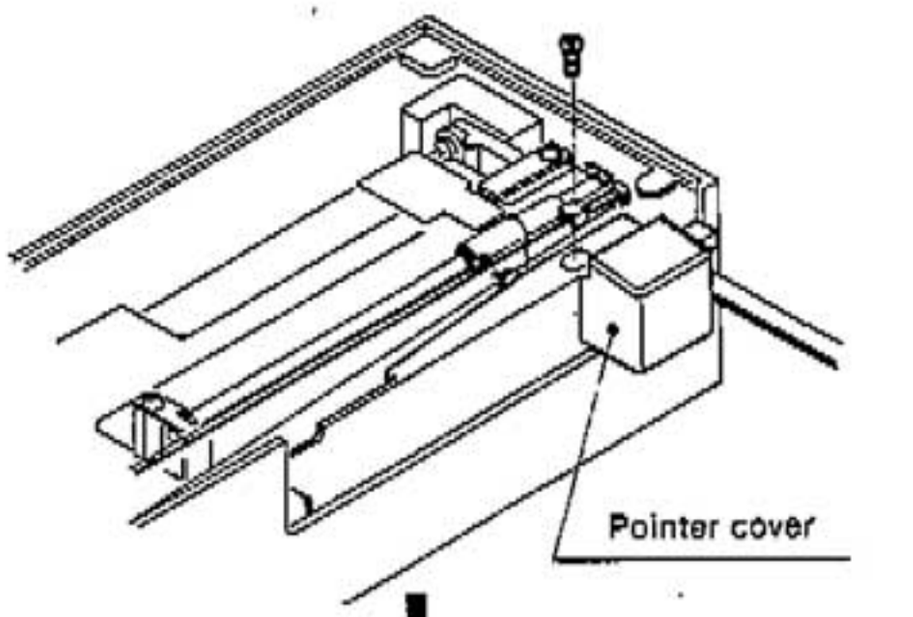
■ ADJUSTMENT POINTS

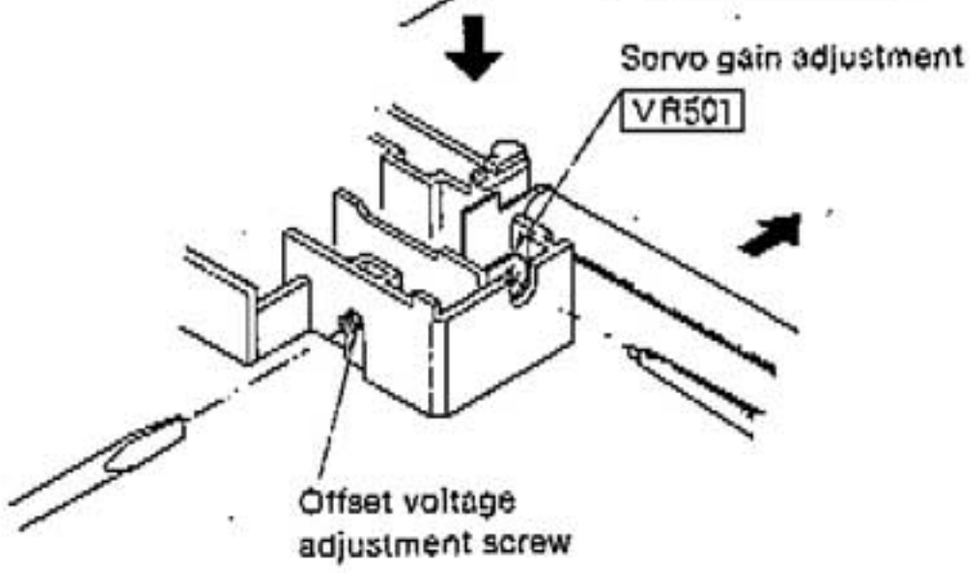


(Fig. 1)
(Abb. 1)

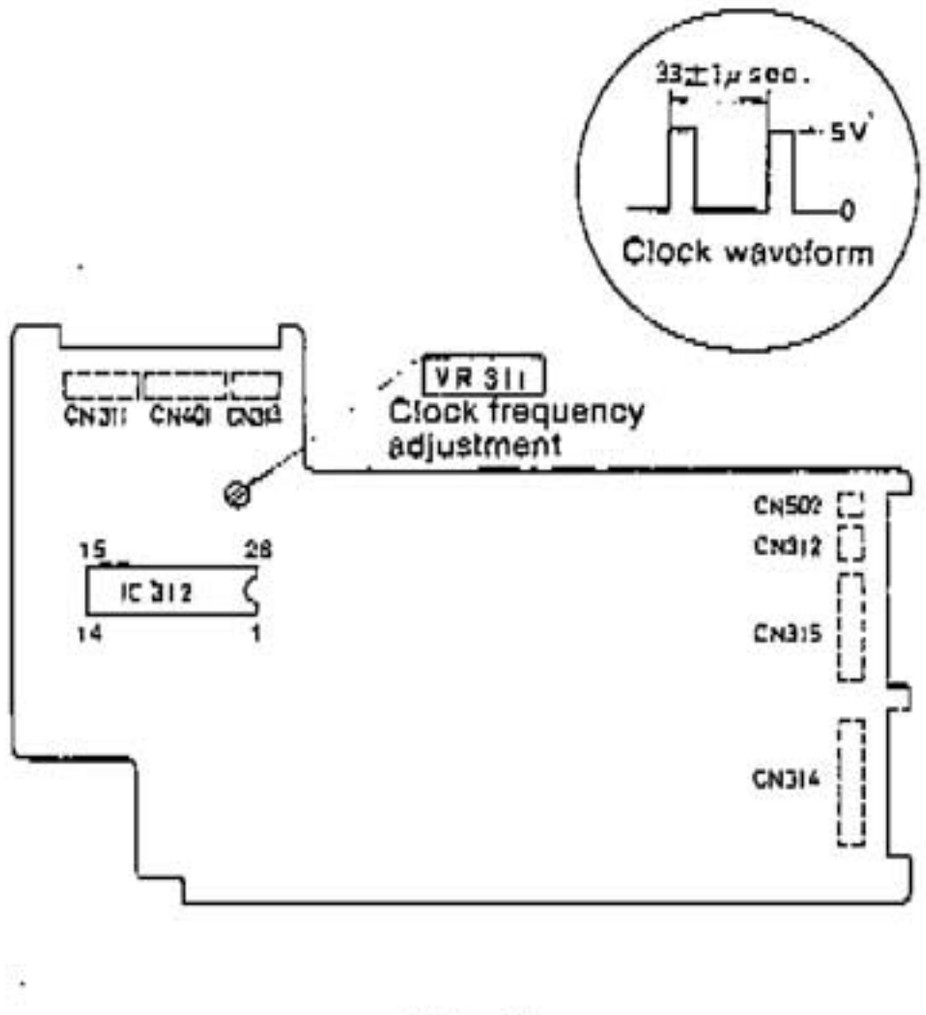


(Fig. 2)
(Abb. 2)





(Fig. 4)
(Abb. 4)

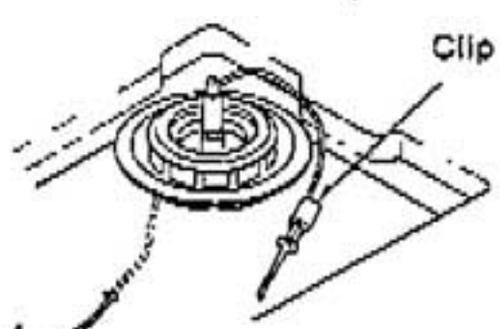


(Fig. 3)
(Abb. 3)

■ TROUBLE SHOOTING

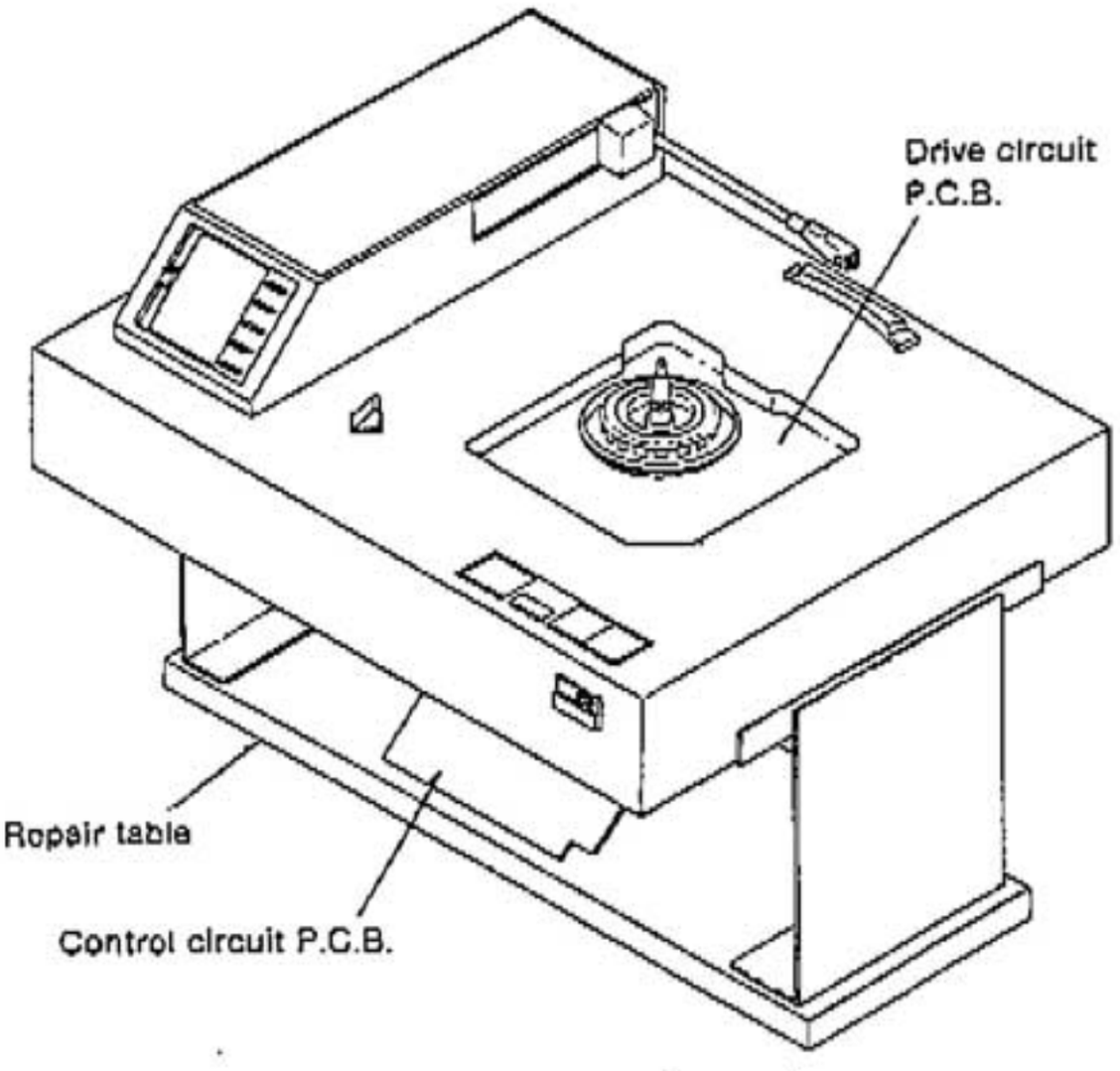
• State of setting

1. Remove the cartridge. (Be sure to remove it for protection of stylus tip.)
2. Remove the turntable platter and panel cover.
3. Remove the bottom board.
4. Remove the control circuit P.C.B.
5. Put the set on the repair table.
6. When checking the drive circuit in rotation mode, pass the lead wire from the cabinet bottom and put on the turntable platter.



• Caution for chek

With mode selector in auto position, the arm operates when the start/stop button is pressed. In manual position, however, the arm does not operate unless the search button is pressed.



★ Turntable drive circuit

Turntable does not rotate.

Power source circuit
1. AC voltage of power transformer secondary side ..... 30 V
2. DC voltage of regulator transistor Q1
   ⓒ 35.8 V ⓑ 20.6 V ⓔ 20 V
3. DC voltage of regulator transistor Q201
   ⓒ 20 V ⓑ 10 V ⓔ 9.4 V
4. DC voltage of drive IC (IC101) terminal ⑲
   ..... 20 V
5. DC voltage of control IC (IC201) terminal ⑩
   ..... 9.4 V

NO →
1. Power transformer, AC cord, S1
2. Q1~3, D1, C1~6, R1~5.
3. Q201, R202
4. IC101
5. IC201

YES ↓

Press start/stop button (S305).

Turntable control circuit
- DC voltage at each terminal of IC201

Pin No.	Stop	Start
⑲	7 V	7 V, S/S pulse
⑳	5.9 V	0.3 V
㉑	0.2 V	2.8 V

NO → IC201

YES ↓

Press start/stop button (S305).

Turntable drive circuit
- DC voltage and waveform at each terminal of IC101

Pin No.	Stop	Start
①	2 V	4 V p-p, 11 V, 0
⑦	2.9 V	
㉔	2 V	
⑪ ⑬ ⑮	T=20μs, 50 kHz, 1.4 V, 15 V	

NO → IC101 drive coil

Note: The waveform at start is measured with the turntable platter on.

★ Operation circuit

Power source circuit
1. DC voltage of regulator IC (IC311)
   ① 20 V ② 0 V ③ 12 V
2. DC voltage of regulator transistor (Q311)
   ⓒ 12 V ⓑ 5.6 V ⓔ 5 V
3. DC voltage of IC312 terminal ㉗
   ..... 5 V

NO →
1. IC311, C311, 312
2. Q311, RF1, R311, 312, C313, D311
3. IC312

YES ↓

Clock frequency
- Waveform of IC312 terminal ④, when connect the IC312 terminal ⑦ ~ ⑩ and ㉗ (+5 V).

33±1μs, ...5 V

NO → IC312, VR311, C322

YES ↓

Press start/stop button (S305).

Start/stop select circuit
1. DC voltage of IC312 terminal ⑪
   ..... 5 V with S/S switch (S305) pressed.
2. DC voltage of IC312 terminal ㉔
   at stop ..... 0.8 V, at start ..... 0.2 V

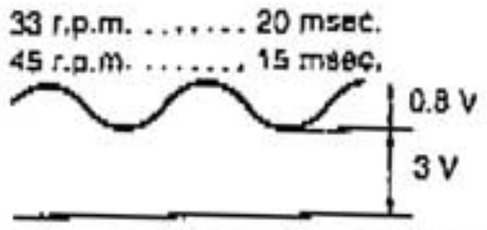
NO → IC312, S305, Q321

Defective rotation (abnormal, unstable)

Press start/stop button (S305).

FG amplifier circuit

- Waveform of IC201 terminal ㉓ (during rotating)



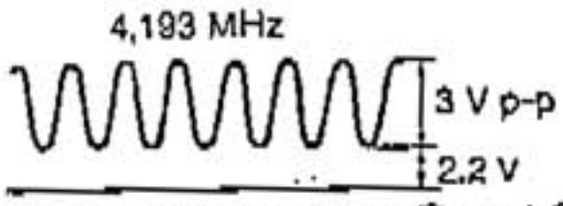
NO → FG coil, IC201, Q203

YES

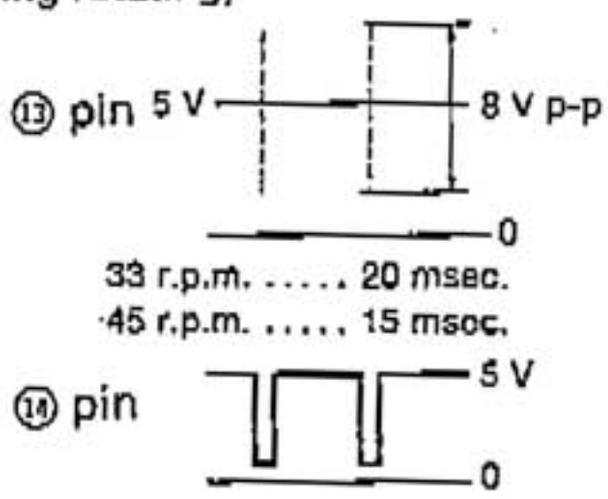
Press start/stop button (S305).

Turntable control circuit

1. Waveform of IC201 terminal ⑤



2. Waveform of IC201 terminals ⑬ and ⑭ (during rotating)



NO → IC201, IC101, X201

YES

Pitch control circuit

1. Waveform of IC302 terminal ①

2. Waveform of IC302 terminal ④

NO → IC301, 302, 201

Auto start function does not work.

Press mode select button (S306).

Mode selector circuit

1. DC voltage of IC313 terminal ⑭
   manual.....5V
   auto.....0V
2. DC voltage of IC312 terminal ⑫
   manual.....0V
   auto.....3V

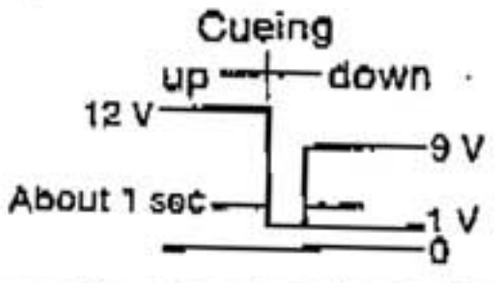
NO →
1. IC313, S306, Q322, 328
2. IC312, Q337

Cueing down/up does not work.

Press cueing button (S303)

Cueing control circuit

1. DC voltage of IC312 terminals ⑦ and ③.
   Terminal ⑦ (during cueing down)
   ..... 3 V
   Terminal ③ (only during cueing down)
   ..... 1.5 V
2. DC voltage of Q325 ⓒ



NO →
1. IC312, S303
2. Q324, 325 Cueing plunger

Arm motor does not rotate.

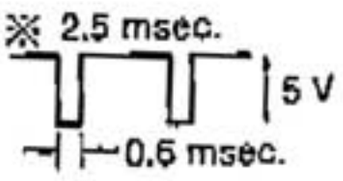
1. Check the arm drive rope.
2. Check the arm drive motor belt.

NO → Slipping off of the rope and belt.

YES ↓

Press forward search button (S301) or backward search button (S302).

※ 2.5 msec.



Arm drive motor control circuit

1. DC voltage of IC312 terminals ⑮ ~ ⑱

	⑮	⑯	⑰	⑱
Stop	5 V	5 V	1 V	1 V
Forward (high)	0 V	5 V	0 V	1.4 V
Forward (low)	※	5 V	0 V	1.4 V
Backward (high)	5 V	0	1.4 V	0

2. DC voltage of Q401 and Q402 emitter

	Q401	Q402
Stop	0.3 V	0.3 V
Forward (high)	9 V	0.8 V
Forward (low)	2.5 V	0.8 V
Backward (high)	0.8 V	9 V

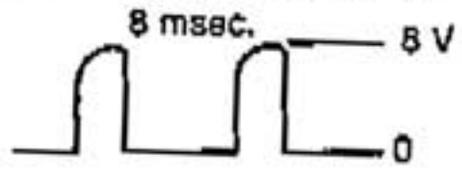
NO → 1. IC312, S301, 302
2. IC401, Q401~404
Arm drive motor

YES ↓

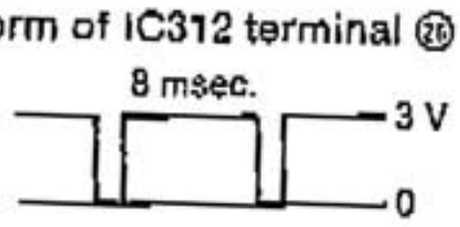
Press forward search button (S301) or backward search button (S302).

Arm position detection circuit

1. Waveform of IC401 terminal ⑬



2. Waveform of IC312 terminal ㉖



NO → 1. IC401, PC601
2. IC312, IC401

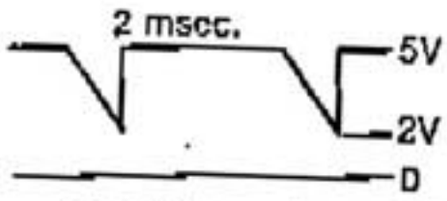
Arm servo does not work. (Offset angle is not detected.)

Press cueing button (S303). "auto " mode

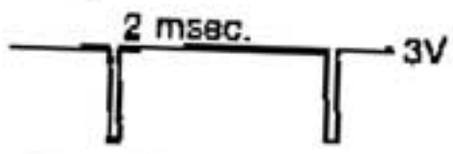
Offset error angle detection circuit

1. Waveform of IC312 terminal ④ (during cueing down)

2. DC voltage of IC401 terminal ⑨ (during tonearm level position) ..... 3.0 V
3. Waveform of IC401 terminal ⑩ (during cueing down)



4. Waveform of IC312 terminal ㉕ (during cueing down)



NO → 1. IC312
2. IC401, PC501, VR501 Adjustment.
3. IC401, Q322
4. IC312, IC401

I REPLACEMENT PARTS LIST

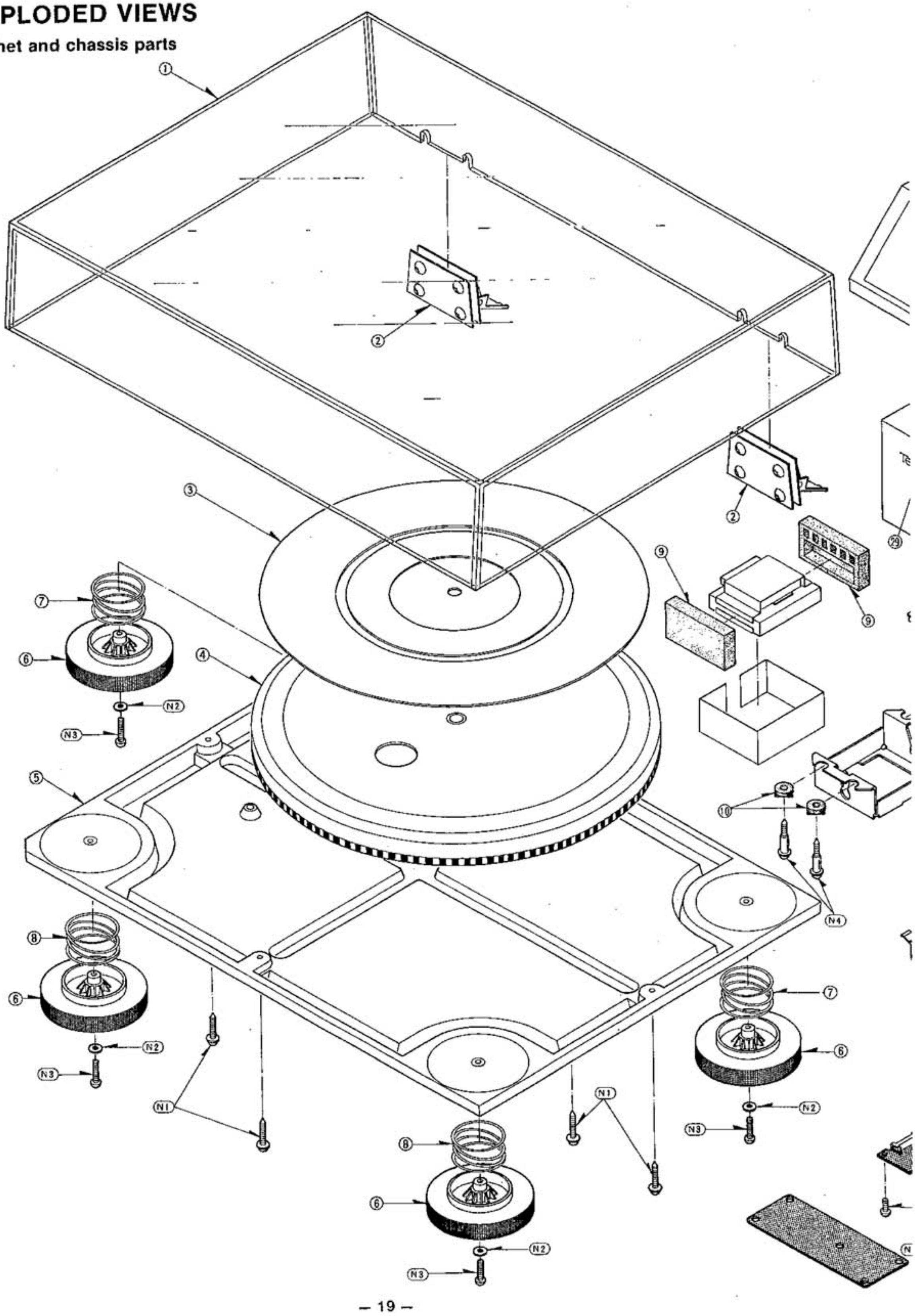
otos: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "Ⓢ" mark is service standard parts and may differ from production parts.
5. The parenthesized numbers in the columns of desciption stand for the quantity per set.

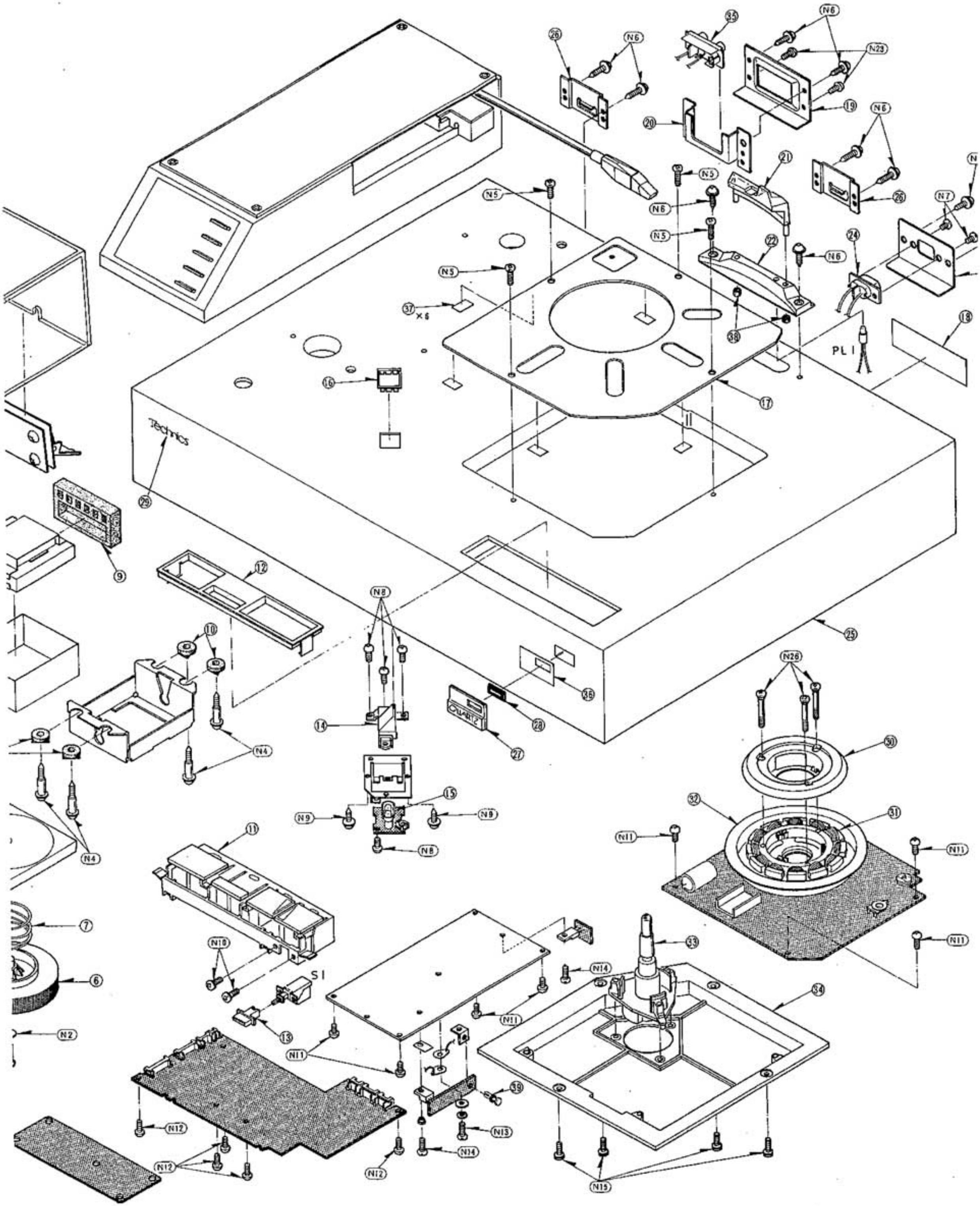
Area
* [M] .....U.S.A.
* [MC] ...Canada
* [E] .....Switzerland and Scandinavia
* [EK] ....United Kingdom
* [XL] ....Australia
* [EG] ....F.R. Germany
* [EB] ....Belgium
* [EH] ....Holland
* [EF] ....France
* [EI] .....Italy
* [EC] ....Czechoslovakia
* [XA] ....Southeast Asia, Oceania, Africa, Middle Near East and Central South America
* [XM] ....Central South America
* [PA] ....far East PX
* [PE] ....European Military
* [PC] ....European Audio Club
* [XZ] ....New Zealand

Ref. No.		Part No.	Description
NTEGRATED CIRCUITS			
C101		AN6675	Turntable Drive
C201		AN6680	Turntable Control
C301		AN6682	Pitch Control
C302		MN4011B	NAND Gate
C311		AN78M12	Regulator
C312		MN1402FPK	Micro Computer
C313, 314		MN4027B	J-K Flip Flop
C401		AN6554	Comparator
RANSISTORS			
Q1		2SD1265	Regulator
Q2, 3		2SD637	Regulator
Q201	Ⓢ	2SC1846-R	Regulator
Q202		2SD637	Strobe Drive
Q203	Ⓢ	2SC1328-T	FG Amp.
Q311		2SC1383	Regulator
Q321		2SD636	Start/Stop Select
Q322		2SB641	Switching
Q323, 324		2SD636	Muting Drive & Cueing Control
Q325		2SD692	Cueing Control
Q326~340		2SD636	Switching, Size Select & Mode Select
Q401, 402		2SD973	Arm Motor Control
Q403, 404		2SD882	Arm Motor Control
IODES			
D1	⚠	SVDS1RBA20Z	Rectifier
D2		MA1051M	5.1V, Zener
D204	Ⓢ	MA162A	Switching
D301		MA1051M	5.1V, Zener
D311		MA4056M	5.6V, Zener
D321		MA4062M	6.2V, Zener
D322		MA165	Switching
D323~330		SVDSLV31VC3	Mode, Speed, Size, Repeat & Pitch Indicator
D501 ~ 503		SVDSLH54DC3	Strobe Indicator
D511	Ⓢ	MA162A	Switching
D701		MA165	Switching
SWITCHES			
S1	⚠	ESB8213V	Power Switch
S2 Except for [M, MC]	⚠	SFDSHXW01317	Voltage Selector
S301 ~ 309		EVQQS405K	F-search, B-search, Cueing, Repeat, Start/Stop, Mode, Size, Speed & Pitch
S601		SFDSC02N03	Rest Switch
VARIABLE RESISTORS			
VR201		EVTS3MA00B54	Brake Adjustment, 50 kΩ (B)
VR301	Ⓢ	EVMH9GA00B53	Pitch Control Adjustment, 5 kΩ (B)
VR311		EVN61AA00B24	Clock Frequency Adjustment, 20 kΩ (B)
VR312		EWAPF5X05AU4	Pitch Control
VR501	Ⓢ	EVNK0AA00B14	Servo Gain Adjustment, 10 kΩ (B)
RELAY			
RL701		SFDYG5A237P	Muting
CRYSTAL			
X201		SVQM54193	Crystal OSC, 4.193 MHz
PHOTO INTERRUPTERS			
PC501		ON1195	Offset Angle Sensor
PC601		ON1181	Arm Position Sensor
LAMP			
PL1		SFDNM03N01E	Stylus Illuminator
FUSES			
F1 [MC] only	⚠	XBA1F16NU14	1.6 A, 250V
F1 Except for [M, MC]	⚠	XBA2C031TR0	T310 mA, 250 V
POWER TRANSFORMER			
T1 [M]	⚠	SLT56DTL3A	Power Source
T1 [MC]	⚠	SLT56DT15D	Power Source
T1 [Other Areas]	⚠	SLT66DTE13F	Power Source
CABINET AND CHASSIS PARTS			
1		SFADM03N01E	Dust Cover (1)
2		SFATM03N01A	Hinge (2)
3		SFTGM01N01	Turntable Mat (1)
4		SFTEM01N01Z	Turntable Platter (1)
5		SFAUM03N01	Bottom Board (1)
6		SFGAM02N01E	Insulator Ass'y (4)
7		SFQAM03N01	Spring (A), Insulator (2)
8		SFQAM03N02	Spring (B), Insulator (2)
9		SFGCM01N01	Cushion Rubber, Power Transformer (2)
10		SFGCM01N02	Cushion Rubber, Power Transformer (4)
11		SFUMM03N02R	Operation Button Ass'y (1)
12		SFUMM03N01	Guide, Operation Button (1)
13		SFKTM02N02	Button, Power Switch (1)
14		SFUM130-01	Strobe Cover (1)
15		SFGZM02N02	Spacer, Strobe (1)
16		SFUMM02N05	Guide, Strobe Cover (1)
17		SFUPM02N04	Cover, Cabinet (1)
18 [M]		SFNNM03M01	Name Plate (1)
18 [MC]		SFNNM03C01	Name Plate (1)
18 [E, EC]		SFNNM03S01	Name Plate (1)
18 [EK, XL, XZ]		SFNNM03G01	Name Plate (1)
18 [XA, XM]		SFNNM03X01	Name Plate (1)
18 [PA, PE]		SFNNM03P01	Name Plate (1)
18 [PC]		SFNNM03P02	Name Plate (1)
18 [Other Areas]		SFNNM03R01	Name Plate (1)
19		SFUPM03N01	Cover, Phono Output (1)
20		SFUPM03N02	Holder, Phono Output (1)
21		SFUMM03N03	Stylus Guard (1)
22		SFUMM03N04	Base, Stylus Guard (1)
23		SFUPM01N07	Holder, AC Socket (1)
24 [M, MC, XL, XA, XM, PA, PE, PC]	⚠	SFDJHSC0491	AC Socket (1)
24 [XZ]	⚠	SFDJHSC516-1	AC Socket (1)
24 [Other Areas]	⚠	SFDJHSC0498	AC Socket (1)
25		SFACM03N01R	Cabinet (1)
26		SFUP116-05	Case, Hinge (2)
27		SFKBM03N01	Badge (Quartz) (1)
28		SFUMM02N05	Guide, Power Switch (1)
29		SFKBM03N02	Badge (Technics) (1)
30		SFMGQ20-01	Cover, Starter Frame (1)
31		SFMG520-31A	Drive Coil Ass'y (1)
32		SFMZ172-01E	FG Coil Ass'y (1)
33		SFMZM01N01A	Shaft Ass'y, Turntable Drive (1)
34 [M]		SFUMM02M03	Base, Drive Circuit Board (1)
34 [Other Areas]		SFUMM02N03	Base, Drive Circuit Board (1)
35		SFDJM03N03	Jack, Phono Out (1)
36		SFUZM02N02	Tape, Badge (1)
37		SFUZM02N06	Spacer (6)
38		SFGZM03N01	Spacer (2)
39		SFUMQ06N22	Latch (1)

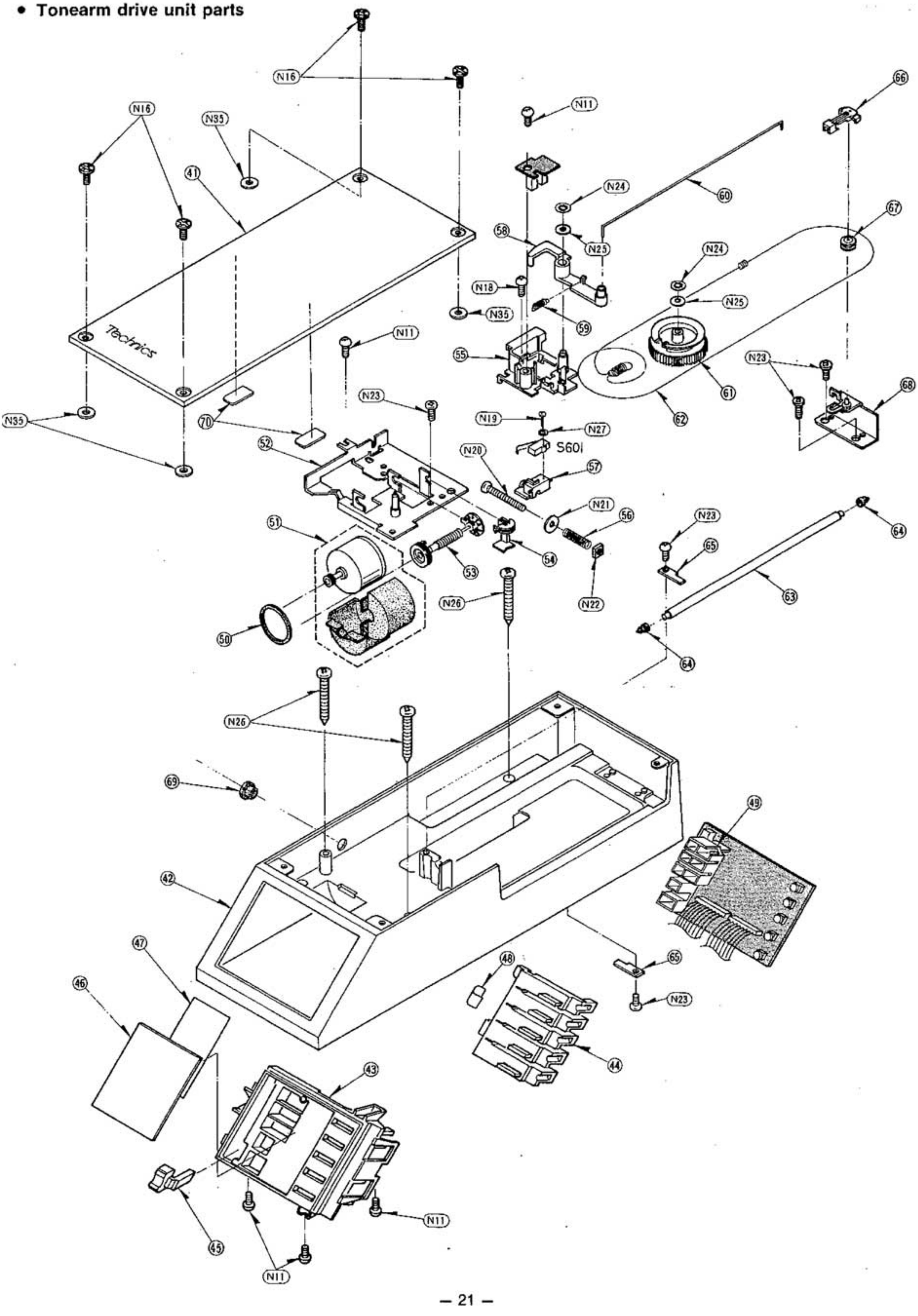
■ EXPLODED VIEWS

- **Cabinet and chassis parts**

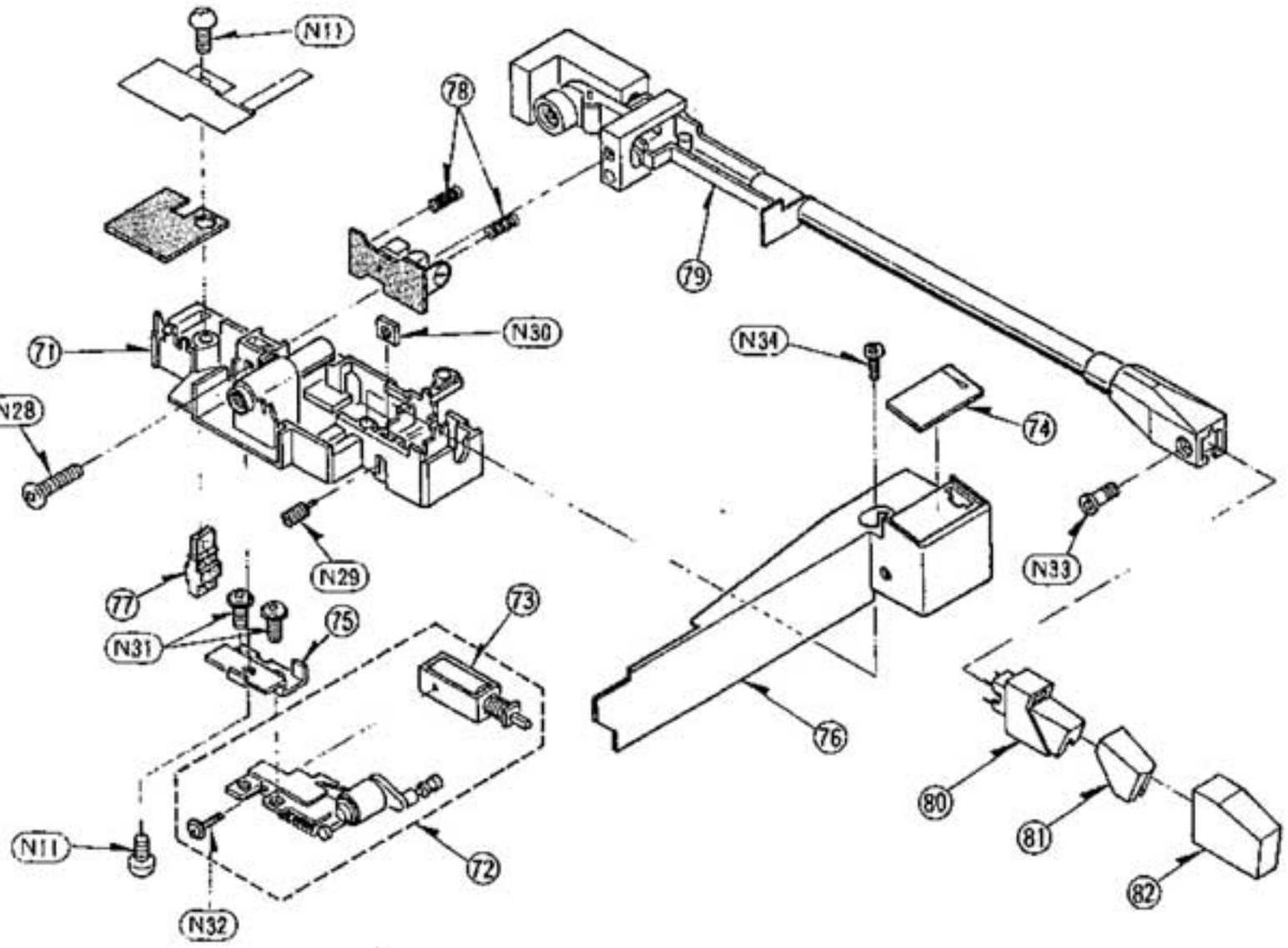



Technics
PL I
S1
QUARTZ

- **Tonearm drive unit parts**



• Tonearm parts



Ref. No.	Part No.	Description
TONEARM DRIVE UNIT PARTS		
41	SFKKM03N02	Cover, Tonearm Box (1)
42	SFUMM03N09E	Tonearm Box (1)
43	SFUMM03N05	Frame, Operation Button (1)
44	SFUMM03N06E	Operation Button Ass'y (1)
45	SFKTM03N03E	Knob, Pitch (1)
46	SFKKM03N01	Ornament Plate (1)
47	SFUZM03N02	Sheet, Ornament Plate (1)
48	SFNZM03N03	Sheet, Ornamant Plate (1)
49	SFUMM03N11	Holder, LED (1)
50	SFGBC10-01	Belt, Tonearm (1)
51	SFMHJ02N01E	Motor Ass'y, Tonearm Drive (1)
52	SFUPBL3N11E	Base, Tonearm Drive Motor (1)
53	SFUMQ06N06A	Worm Gear Ass'y (1)
54	SFUMC02N10	Rope Guide (1)
55	SFUMQ06N09	Holder, Rest Switch (1)
56	SFQA913-01	Spring, Adjustment Screw (1)
57	SFUMC02N06	Base, Rest Switch (1)
58	SFUMC02N05	Lever, Rest Switch (1)
59	SFQHQ34N22	Spring, Rest Switch Lever (1)
60	SFUZM03N04	Rod, Rest Switch (1)
61	SFUML11R03	Wheel, Tonearm Drive (1)
62	SFUZM03N03E	Rope Ass'y, Tonearm Drive (1)
63	SFXJM03N01	Guide Rail, Tonearm Drive (1)
64	SFGCC05N05	Cushion Rubber, Guide Rail (2)
65	SFUPM03N03	Holder, Guide Rail (1)
66	SFUMV05N23	Cap, Pulley (1)
67	SFUMC05N22	Pulley (1)
68	SFUPM03N02E	Bracket, Guide Rail (1)
69	SFGK171F01	Cap (1)
70	SFGCC07-08	Spacer (2)
TONEARM PARTS		
71	SFPKD0M301E	Base, Tonearm (1)
72	SFPZB0M302E	Tonearm Lift Ass'y (1)
73	SFDZM03N01E	Solenoid Ass'y (1)
74	SFPAK0M301	Pointer (1)
75	SFPZB0M301	Holder (1)
76	SFPCS0M301	Cover, Tonearm Base (1)
77	SFPGML1101	Cushion Rubber, Tonearm (1)
78	SFPSP00302	Spring, Adjustment (2)
79	SFPAM0M301A	Tonearm Ass'y (1)
80 Except for [M, MC]	EPC-P33	★Cartridge (1)
81 Except for [M, MC]	EPS-33ES	★Stylus (1)
82 Except for [M, MC]	SFCNC03301	Cover, Stylus (1)

Ref. No.		Part No.	Description
SCREWS, WASHERS AND NUTS			
N1		XTWS3+25QFZ	Screw, ⊕3X25 (4)
N2	Ⓢ	XWA3BFZ	Washer, φ3 (4)
N3	Ⓢ	XSN3+16BVS	Screw, ⊕3X16 (4)
N4		SFXGM02N02	Screw (4)
N5		XYM3+C12FZ	Screw, ⊕3X12 (4)
N6		XTWS3+14QFZ	Screw, ⊕3X14 (10)
N7		XTV4+6GFZ	Screw, ⊕4X6 (2)
N8	Ⓢ	XTN3+8B	Screw, ⊕3X8 (4)
N9		XTWS3+12QFZ	Screw, ⊕3X12 (2)
N10		XYN3+F8	Screw, ⊕3X8 (2)
N11	Ⓢ	XTV3+8BFN	Screw, ⊕3X8 (17)
N12	Ⓢ	XTV3+10BFN	Screw, ⊕3X10 (2)
N13		XYE3+EJ8	Screw, ⊕3X8 (1)
N14		XYN3+C6S	Screw, ⊕3X6 (1)
N15		SFXGM02N03	Screw (4)
N16		SFXGM03N01	Screw (4)
N17		SFXGM02N01	Screw (3)
N18	Ⓢ	XTN3+6B	Screw, ⊕3X6 (1)
N19		XTN16+10G	Screw, ⊕1.6X10 (1)
N20	Ⓢ	XSN3+30S	Screw, ⊕3X30 (1)
N21	Ⓢ	XWE3D10	Washer, φ3 (1)
N22		XNC3HS	Nut, φ3 (1)
N23	Ⓢ	XTV3+6BFZ	Screw, ⊕3X6 (1)
N24		CSTW3	Washer, φ3 (2)
N25	Ⓢ	XWE3A8BW	Washer, φ3 (2)
N26		XTN5+30AFZ	Screw, ⊕5X30 (3)
N27		XWE2C4BN	Washer, φ2 (1)
N28		XYN3+F12S	Screw, ⊕3X12 (1)
N29		SFPTN00301	Screw (1)
N30		SFXN623-1	Nut (1)
N31		XTN26+6JFZ	Screw, ⊕2.6X6 (2)
N32		XYN2+C4	Screw, ⊕2X4 (2)
N33		SFPEV08001	Screw (1)
N34		XTN23+6JFZ	Screw, ⊕2.3X6 (1)
N35		SFXWM03N01	Washer (4)

■ RESISTORS AND CAPACITORS

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacture's specified parts.
3. This "Ⓢ" mark is service standard parts and may differ from production parts.
4. Unless otherwise specified. All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ All capacitors are in MICROFARADS (μF), P = 10^{-5} μF.

Numbering System of Resistor
Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

ERG	1	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD: Carbon	25 : 1/4 W	F : ±1%
ERG: Metal Oxide	S2 : 1/4 W	J : ±5%
ERX: Metal Film	50 : 1/2 W 1 : 1 W	G : ±2%
ERO: Metal Film		

ERD2FCG □□□ ⟶ Fuse type carbon (1/4 W)
ERDS2TJ □□□ ⟶ Small type carbon (1/4 W)

Numbering System of Capacitor
Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

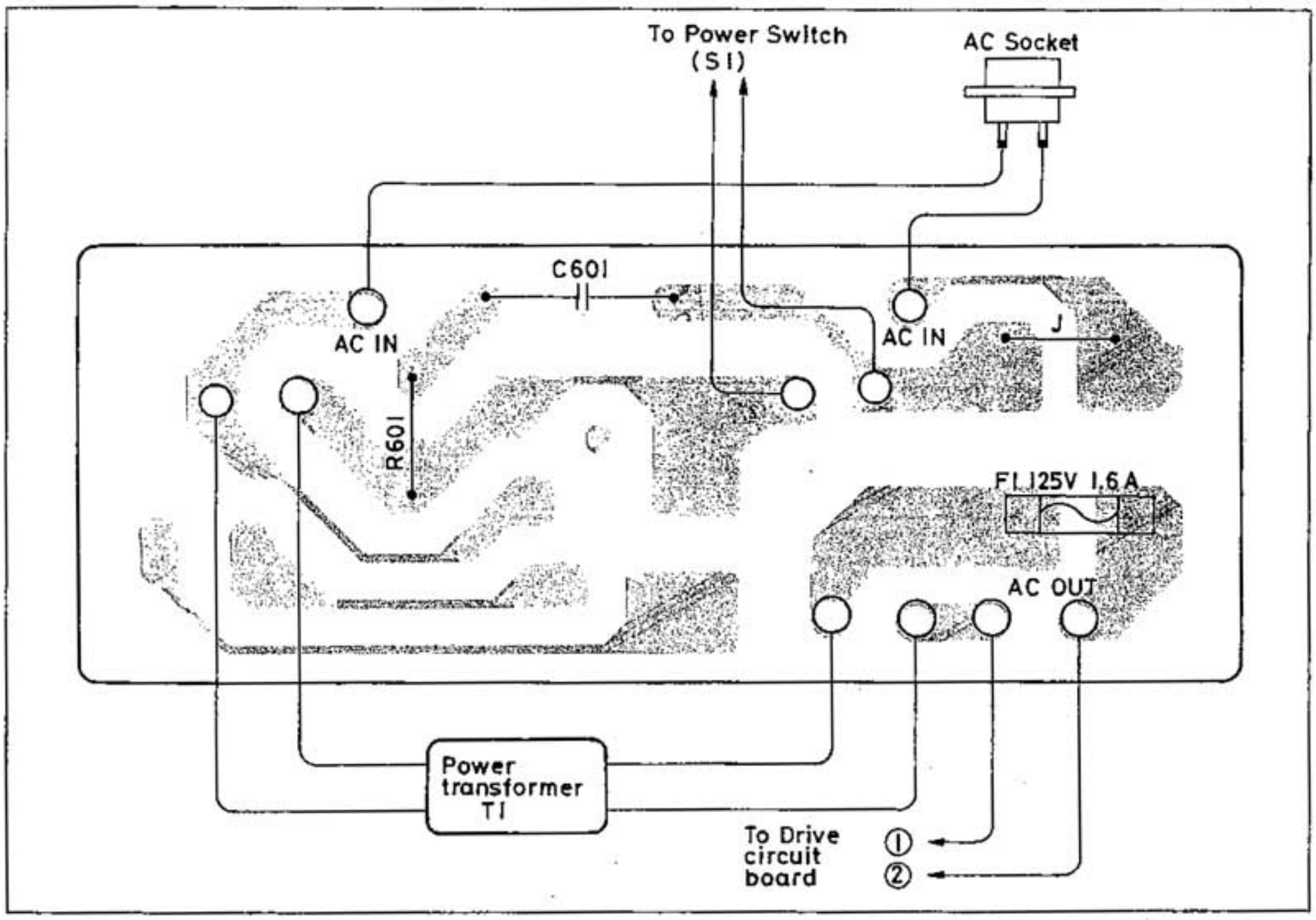
Capacitor Type	Voltage	Tolerance
ECEA : Electrolytic	1A : 10 V	J : ±5%
ECEB : Electrolytic	1C : 16 V	K : ±10%
ECKD : Ceramic	1E : 25 V	Z : +80%, −20%
ECQM : Polyester	1V : 35 V	P : +100%, −0%
ECCD : Ceramic	1H : 50 V	M : ±20%
ECKR : Ceramic	1J : 63 V	
ECQP : Polypropylene	50 : 50 V	
ECFR : Ceramic	1 : 100 V	
ECQU : Polyster	2 : 250 V	
ECQE : Polyster		

Ref. No.	Part No.	Value
RESISTORS		
RF1 ⚠	ERD2FCG120P	12
RF2 ⚠	ERD2FCG180P	18
R1 Ⓢ	ERD25FJ562	5.6K
R2 Ⓢ	ERD25FJ682	6.8K
R3 Ⓢ	ERD25FJ272	2.7K
R4, 5 Ⓢ	ERD25FJ471	470
R101 Ⓢ	ERD25FJ103	10K
R102 Ⓢ	ERX1ANJ4R7	4.7
R103 Ⓢ	ERD25FJ472	4.7K
R104 Ⓢ	ERD25TJ473	47K
R105 Ⓢ	ERD25FJ103	10K
R106 Ⓢ	ERD25FJ150	15
R107 Ⓢ	ERX1ANJ1R5	1.5
R108 Ⓢ	ERD25FJ103	10K
R109, 110 Ⓢ	ERX1ANJ4R7	4.7
R201 Ⓢ	ERG1ANJ561	560
R202 Ⓢ	ERD25FJ103	10K
R203 Ⓢ	ERD25FJ470	47
R204 Ⓢ	ERD25FJ272	2.7K
R205 Ⓢ	ERD25TJ124	120K
R206 Ⓢ	ERD25TJ183	18K
R207 Ⓢ	ERD25TJ563	56K
R208 Ⓢ	ERD25TJ224	220K
R209 Ⓢ	ERD25TJ124	120K
R210 Ⓢ	ERD25TJ123	12K
R211 Ⓢ	ERD25FJ103	10K
R212 Ⓢ	ERD25FJ271	270
R214 Ⓢ	ERD25TJ223	22K
R215 Ⓢ	ERD25FJ472	4.7K
R216 Ⓢ	ERD25TJ154	150K
R217 Ⓢ	ERD25TJ223	22K
R218 Ⓢ	ERD25FJ102	1K
R219 Ⓢ	ERD25FJ332	3.3K
R220 Ⓢ	ERD25FJ221	220
R221 Ⓢ	ERD25FJ471	470
R222 Ⓢ	ERD25FJ391	390
R301 Ⓢ	ER025CKF1501	1.5K
R302 Ⓢ	ERD25FJ471	470
R303 Ⓢ	ERD25FJ822	8.2K
R304 Ⓢ	ERD25FJ561	560
R306 Ⓢ	ERD25TJ223	22K
R311	ERDS2TJ681	680
R312	ERDS2TJ221	220
R321	ERDS2TJ103	10K
R322	ERDS2TJ561	560
R323	ERDS2TJ271	270
R324	ERDS2TJ821	820
R325	ERDS2TJ102	1K
R326	ERDS2TJ103	10K
R327	ERDS2TJ472	4.7K
R328	ERDS2TJ682	6.8K
R329	ERDS2TJ104	100K
R330	ERDS2TJ103	10K
R331	ERDS2TJ333	33K
R332	ERDS2TJ153	15K
R333	ERDS2TJ223	22K
R334 ~ 339	ERDS2TJ272	2.7K
R340 ~ 342	ERDS2TJ562	5.6K
R343, 344	ERDS2TJ222	2.2K
R345	ERDS2TJ272	2.7K
R346	ERDS2TJ562	5.6K
R347	ERDS2TJ152	1.5K
R348	ERDS2TJ223	22K
R349 ~ 351	ERDS2TJ272	2.7K
R352	ERDS2TJ472	4.7K
R353, 354	ERDS2TJ331	330
R355	ERDS2TJ152	1.5K
R356	ERDS2TJ562	5.6K
R357	ERDS2TJ103	10K
R358	ERDS2TJ104	100K
R359	ERDS2TJ103	10K
R360	ERDS2TJ104	100K
R361	ERDS2TJ101	100
R362	ERDS2TJ104	100K
R363	ERDS2TJ333	33K
R365	ERDS2TJ101	100
R366	ERDS2TJ104	100K
R367	ERDS2TJ333	33K
R369	ERDS2TJ101	100
R370	ERDS2TJ104	100K
R371	ERDS2TJ103	10K
R373	ERDS2TJ101	100
R374	ERDS2TJ104	100K
R375	ERDS2TJ103	10K
R377 ~ 384	ERDS2TJ223	22K
R385	ERDS2TJ153	15K
R386	ERDS2TJ333	33K
R387, 388 Ⓢ	ERD25FJ151	150
R390 ~ 392 Ⓢ	ERD25FJ151	150
R393, 394 Ⓢ	ERD25FJ221	220
R401, 402	ERDS2TJ823	82K
R403	ERDS2TJ182	1.8K
R404	ERDS2TJ822	8.2K
R405	ERDS2TJ152	1.5K
R406	ERDS2TJ102	1K
R407	ERDS2TJ224	220K
R408	ERDS2TJ152	1.5K
R409	ERDS2TJ102	1K
R410	ERDS2TJ224	220K
R411	ERDS2TJ822	8.2K
R501 Ⓢ	ERD25FJ681	680
R502 Ⓢ	ERD25FJ391	390
R601 ⚠Ⓢ	ERD50FJ4R7	4.7
CAPACITORS		
C1 Ⓢ	ECEB1HU102	1000
C2 Ⓢ	ECEA1EU330	33
C3 Ⓢ	ECEA1EU220	22
C5, 6	ECQM1223KZ	0.022
C101 ~ 103 Ⓢ	ECEA1EU330	33
C104 ~ 107 Ⓢ	ECQM1H104JZ	0.1
C108 Ⓢ	ECEA1EU101	100
C109, 110 Ⓢ	ECQM1H104JZ	0.1
C111 Ⓢ	ECQM1H562JZ	0.0056
C112 Ⓢ	ECEA1HU4R7	4.7
C201 Ⓢ	ECEA1CU330	33
C202, 203 Ⓢ	ECEA1HU010	1
C204 Ⓢ	ECQM1H473JZ	0.047
C205 Ⓢ	ECEA0JU221	220
C206 Ⓢ	ECEA1HU010	1
C207 Ⓢ	ECCD1H101K	100P
C208 Ⓢ	ECCD1H220K	22P
C209 Ⓢ	ECEA1CU101	100
C210, 211 Ⓢ	ECQM1H224JZ	0.22
C212 Ⓢ	ECEA1HU3R3	3.3
C213 Ⓢ	ECCD1H471K	470P
C214 Ⓢ	ECEA1CU101	100
C215 Ⓢ	ECEA1HU010	1
C216 Ⓢ	ECEA1CU470	47
C217 ~ 219 Ⓢ	ECKD1H104ZF	0.1
C301	ECQP1153JZ	0.015
C302 Ⓢ	ECQM1H153JZ	0.015
C303 Ⓢ	ECEA1HU010	1
C304 Ⓢ	ECEA1CU100	10
C305 Ⓢ	ECQM1H122JZ	0.0012
C306 Ⓢ	ECEA1HU010	1
C311, 312 Ⓢ	ECEA1EU470	47
C313 Ⓢ	ECEA0JU330	33
C321 Ⓢ	ECQM1H104JZ	0.1
C322 Ⓢ	ECCD1H680K	68P
C323 Ⓢ	ECEA1HU010	1
C324	ECFR1H104ZFM	0.1
C325 ~ 330 Ⓢ	ECEA1HU010	1
C331 ~ 333	ECFR1H104ZFM	0.1
C334	ECKR1H222KB	0.0022
C335 ~ 339	ECKR1H102KB	0.001
C340 Ⓢ	ECEA0JU470	47
C341	ECKR1H102KB	0.1
C401, 402 Ⓢ	ECQM1H223JZ	0.022
C601 [M,MC] ⚠	ECQU1A473ME	0.047
C601 [XA, XM, PA, PE, PC] ⚠	ECQE2A223ME	0.022
C601 [Other Areas] ⚠	ECQU2A223MF	0.022
C611	ECFB1B104ZM	0.1
C701 Ⓢ	ECEA1CU101	100

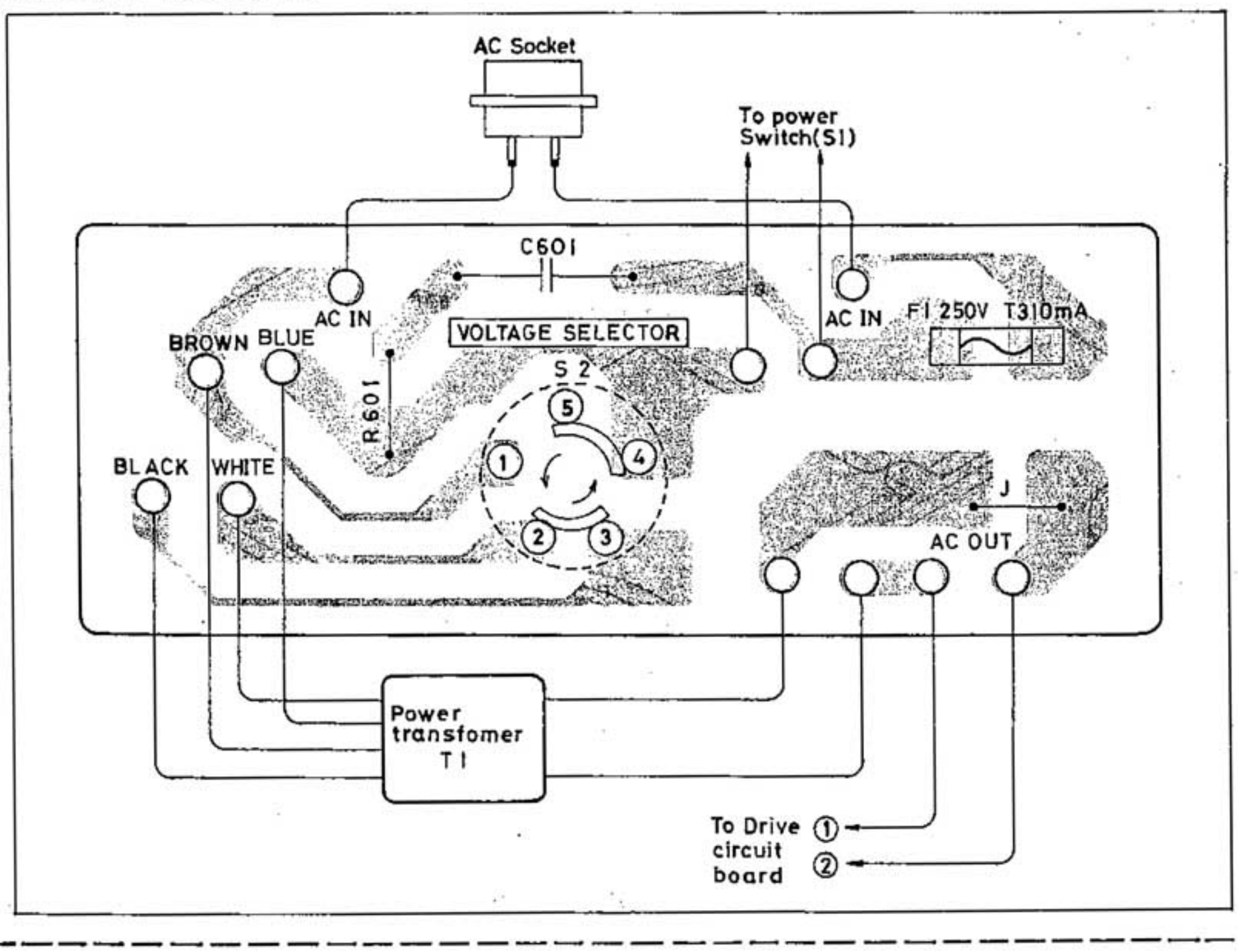
■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

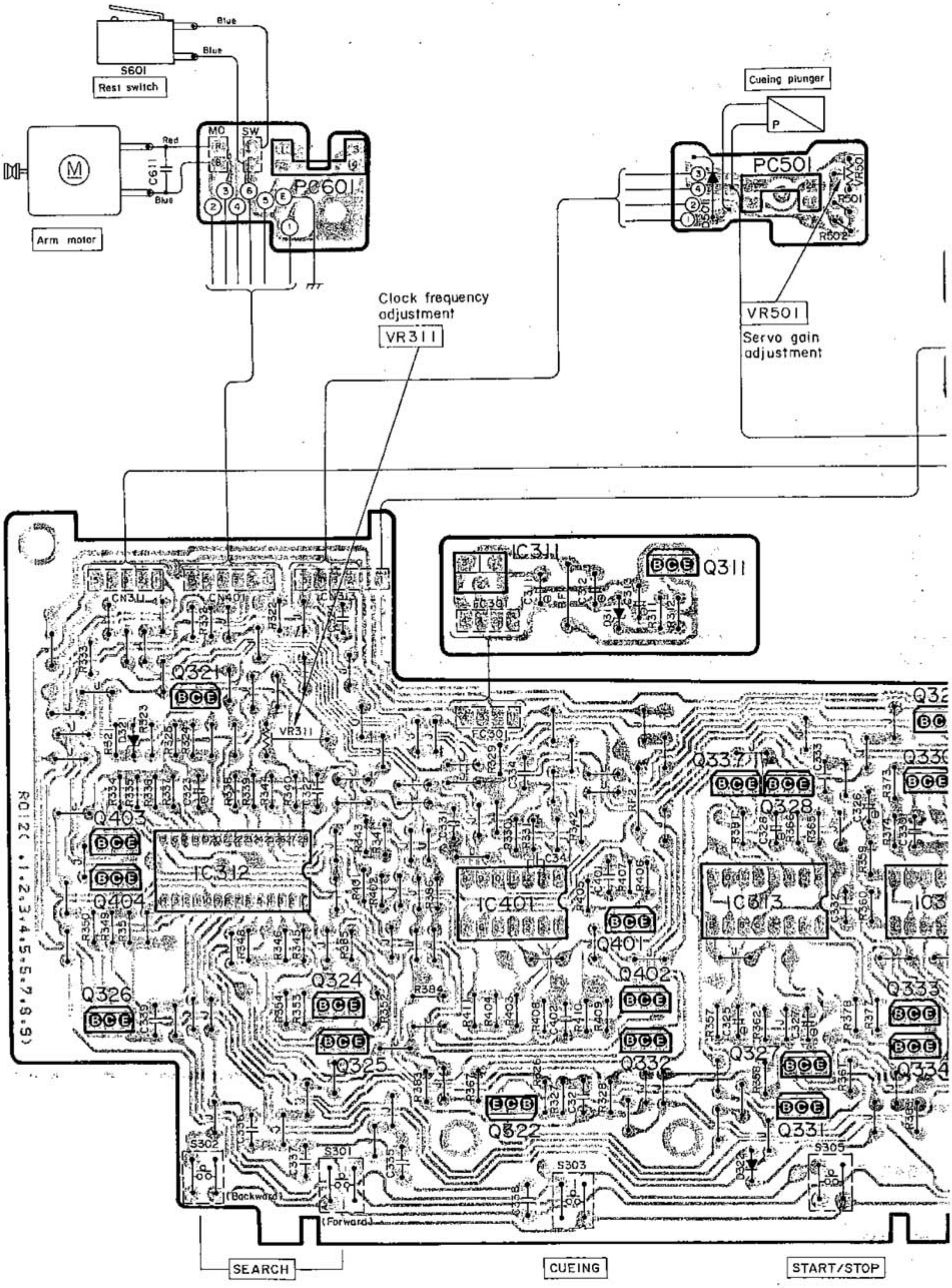
- **Power source circuit**

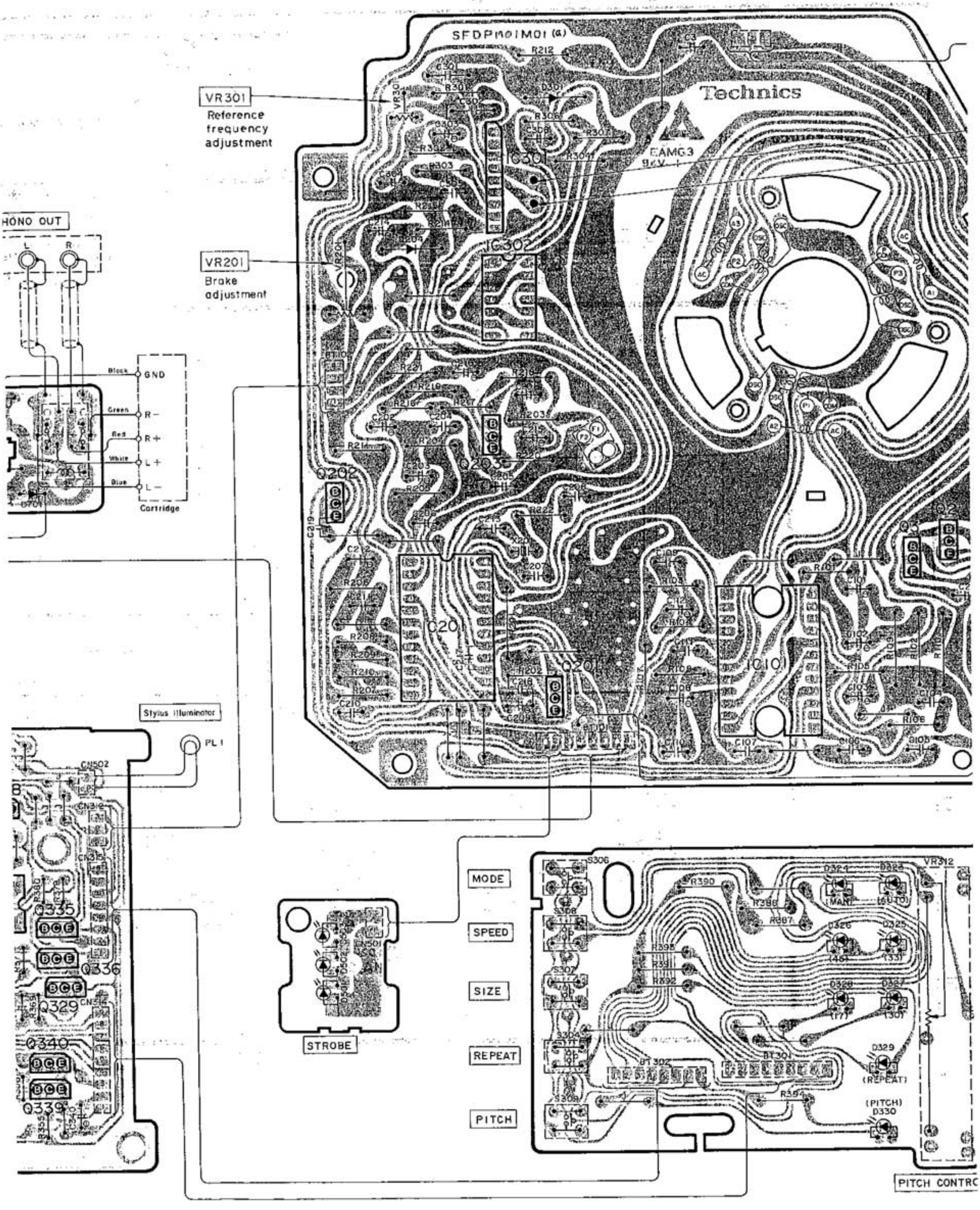
★ **Product for Canada.**

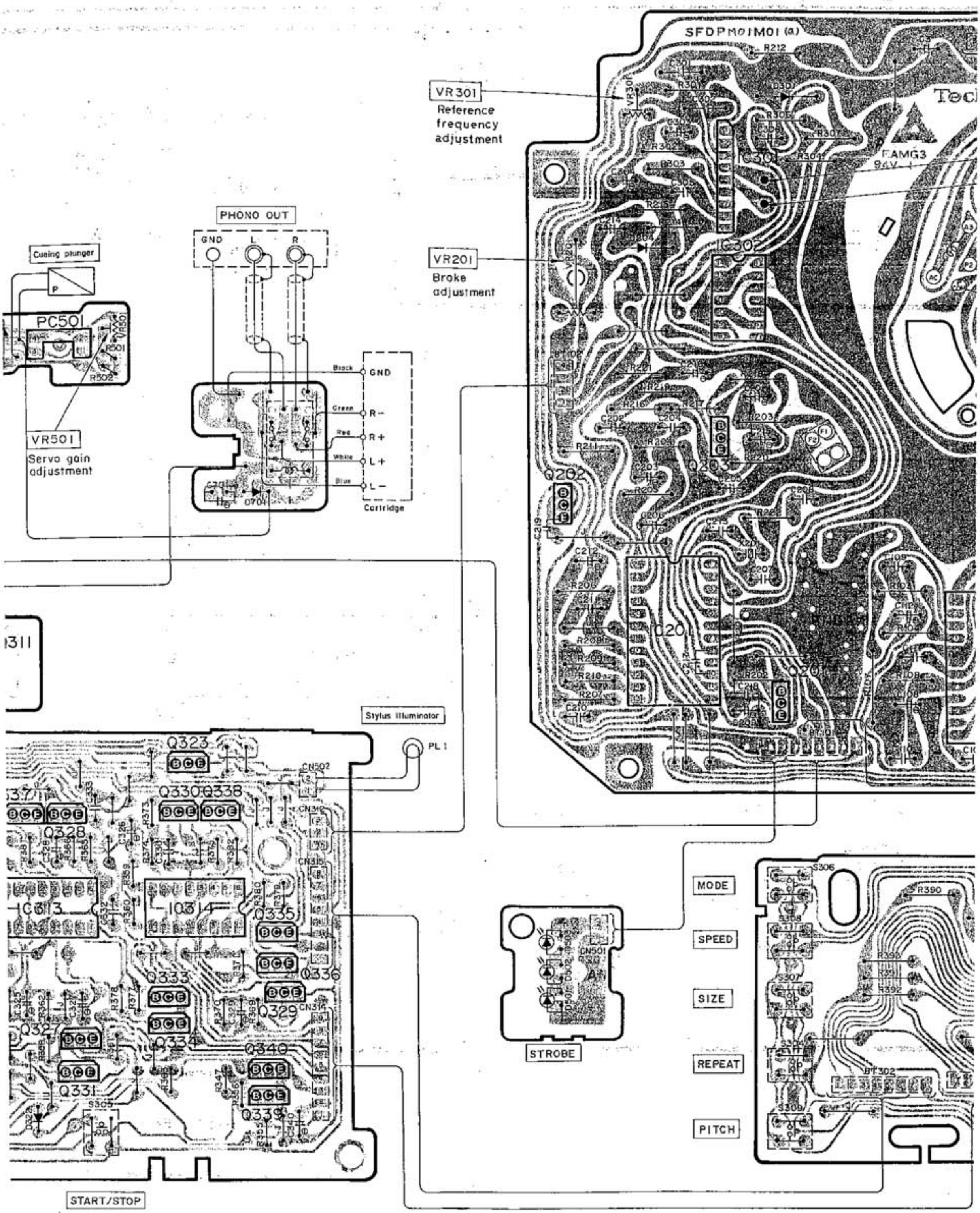


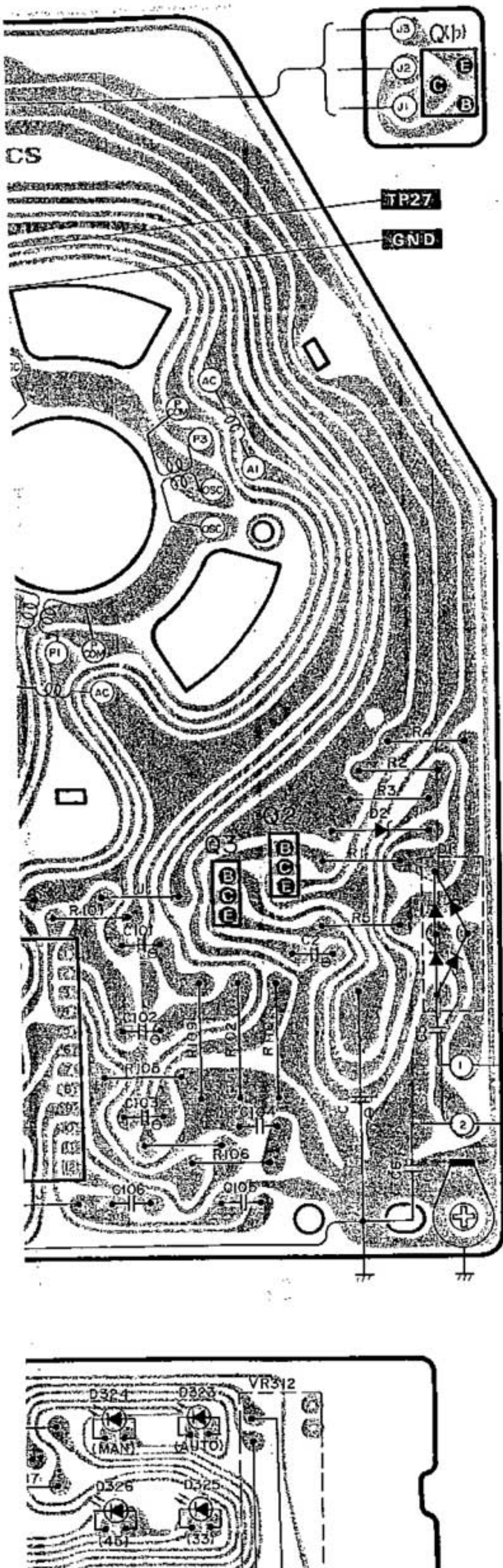
★ **Product for other areas**




S601
Rest switch
Blue
Blue
Red
Blue
C611
M
Arm motor
MO
SW
PC601
Clock frequency adjustment
VR311
Cueing plunger
P
PC501
VR501
R501
R502
Servo gain adjustment
IC311
Q311
VR311
Q321
Q403
Q404
IC312
IC401
Q401
Q402
Q324
Q325
Q326
Q322
Q327
Q328
Q331
Q332
Q333
Q334
IC303
S302
S301
S303
S305
(Backward)
(Forward)
SEARCH
CUEING
START/STOP

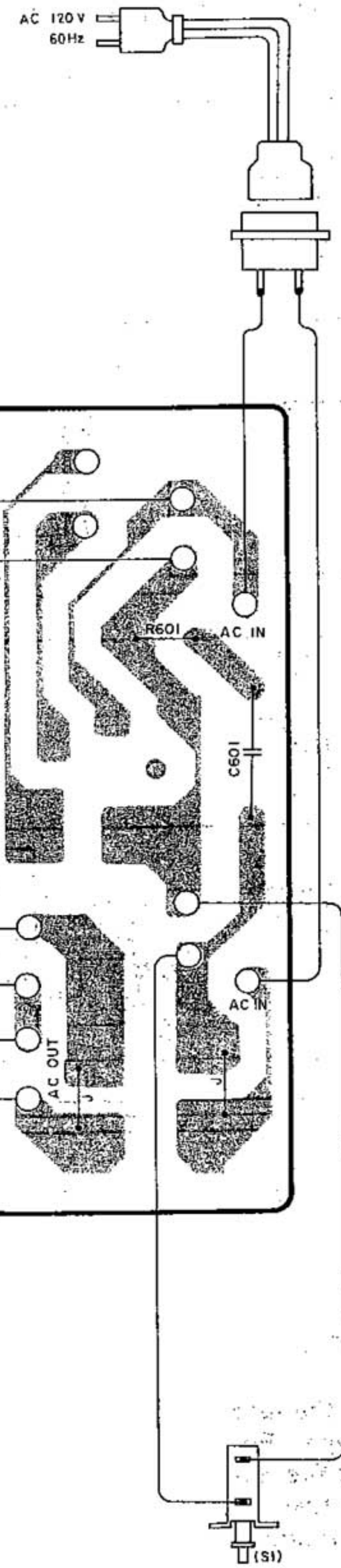

VR301
Reference frequency adjustment
VR201
Brake adjustment
PHONO OUT
L
R
Black
GND
Green
R −
Red
R +
White
L +
Blue
L −
Cartridge
Stylus Illuminator
PL1
CN502
CN316
STROBE
MODE
SPEED
SIZE
REPEAT
PITCH
PITCH CONTRC
SFDP101M01 (a)
Technics
EAMG3
IC301
IC302
IC201
IC101
Q202
Q203
Q201
Q335
Q336
Q329
Q340
Q339
Q2
Q3
D324
D325
D326
D327
D328
D329
(MANU)
(AUTO)
(REPEAT)
(PITCH)
D330
VR312


VR301
Reference frequency adjustment
VR201
Broke adjustment
VR501
Servo gain adjustment
Cueing plunger
P
PC501
R501
R502
PHONO OUT
GND
L
R
Black
Green
Red
White
Blue
GND
R –
R +
L +
L –
Cartridge
Stylus Illuminator
PL1
START/STOP
MODE
SPEED
SIZE
REPEAT
PITCH
STROBE
SFDPM01M01 (a)
IC301
IC302
Q202
Q203
Q323
Q330 Q338
Q328
Q313
Q314
Q335
Q336
Q333
Q329
Q334
Q340
Q327
Q331
Q339
S305
S306
S307
S308
S309
S304
BT302
CN502
CN315
CN316
CN314
CN501



PITCH CONTROL

★ Power source circuit for U.S.A.



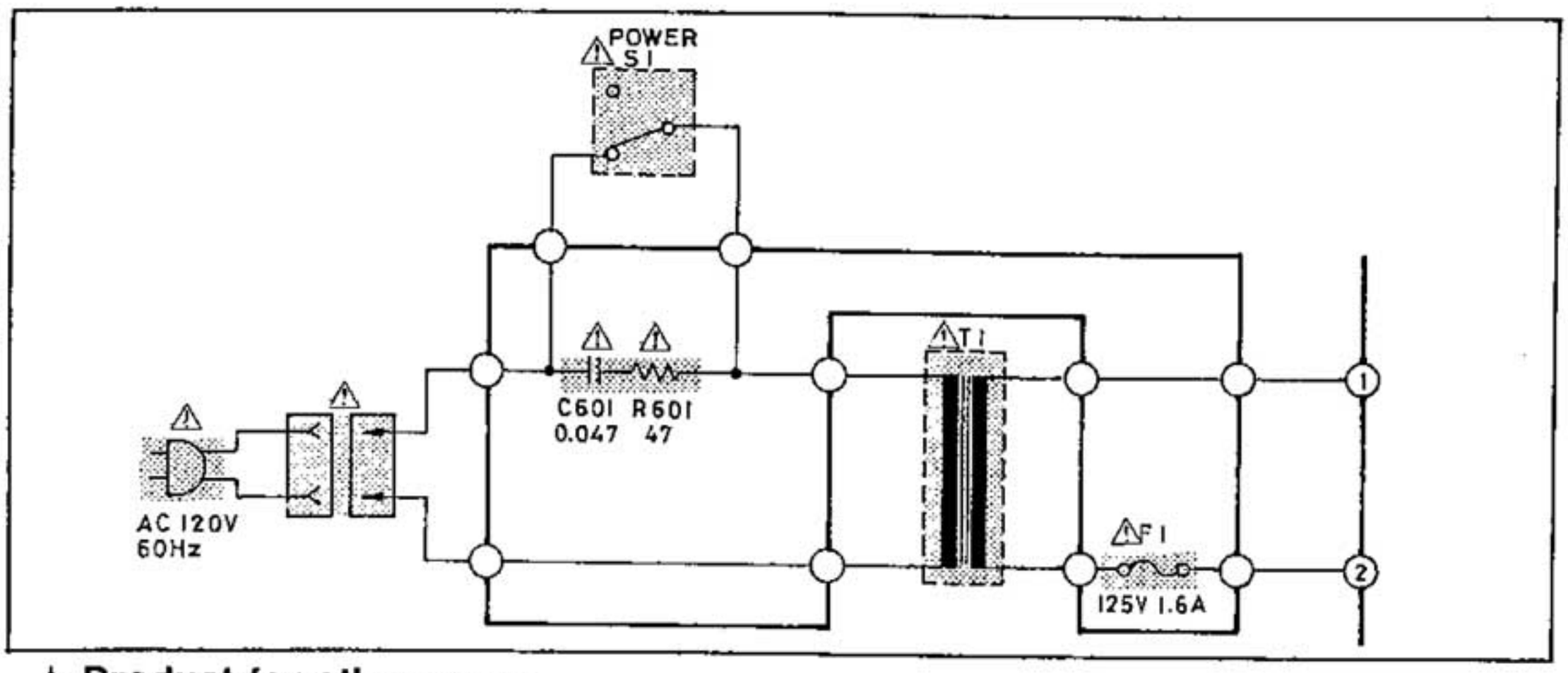
POWER

■ SCHEMATIC DIAGRAM

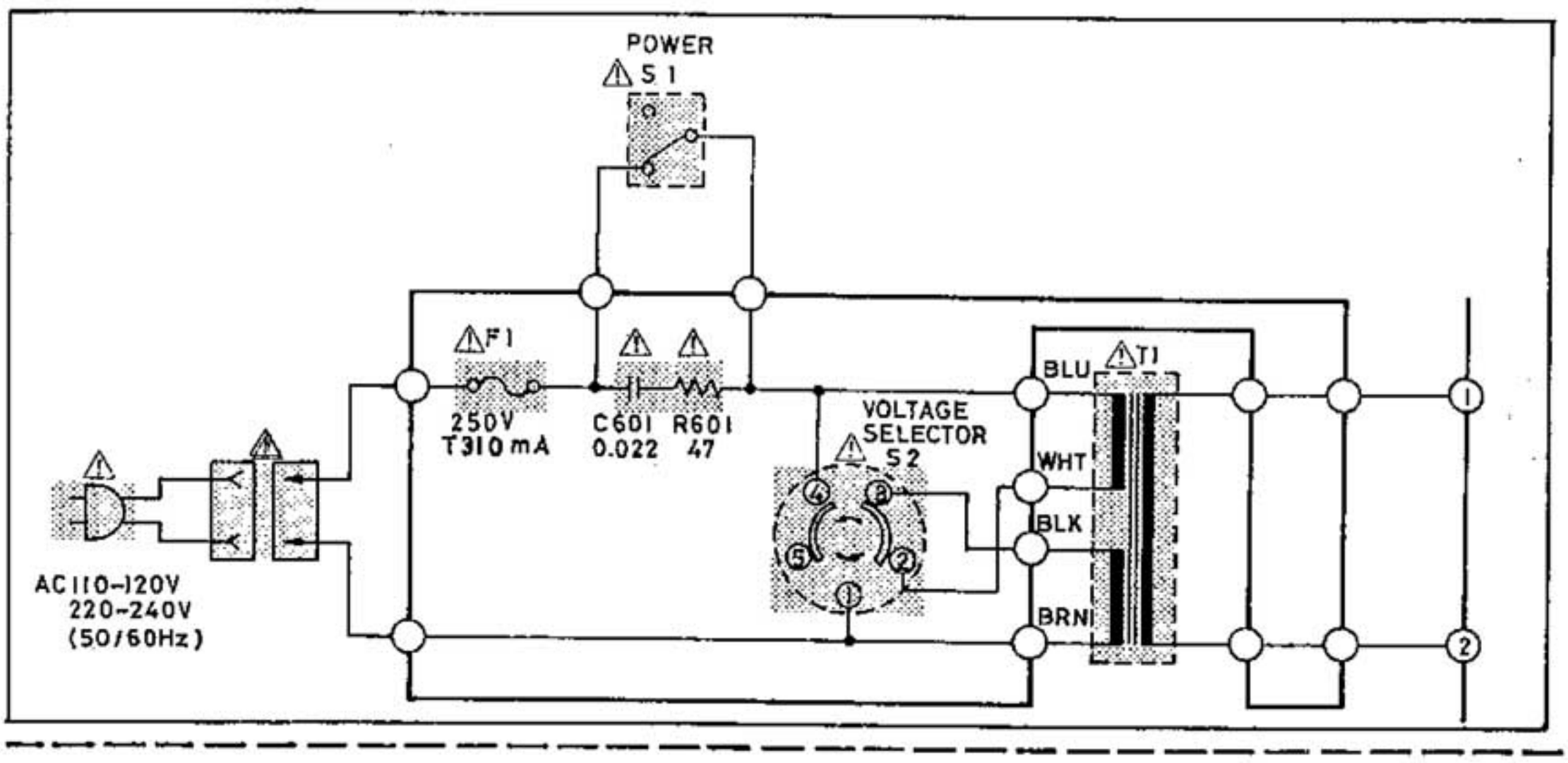
(This schematic diagram may be modified at any time with the development of new technology

- **Power source circuit**

★ Product for Canada.



★ Product for other areas



- **Product for MC only**

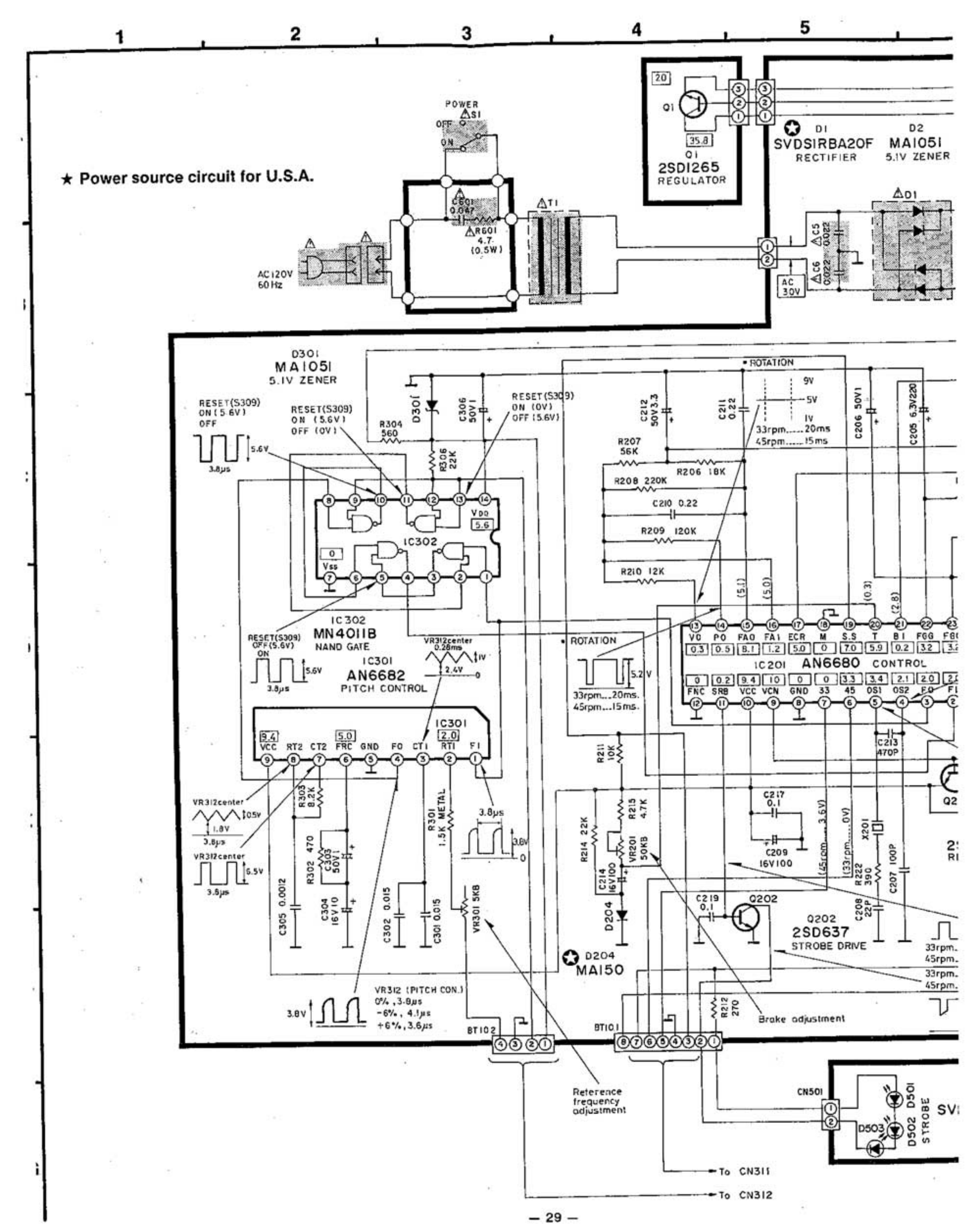
FUSE REPLACEMENT

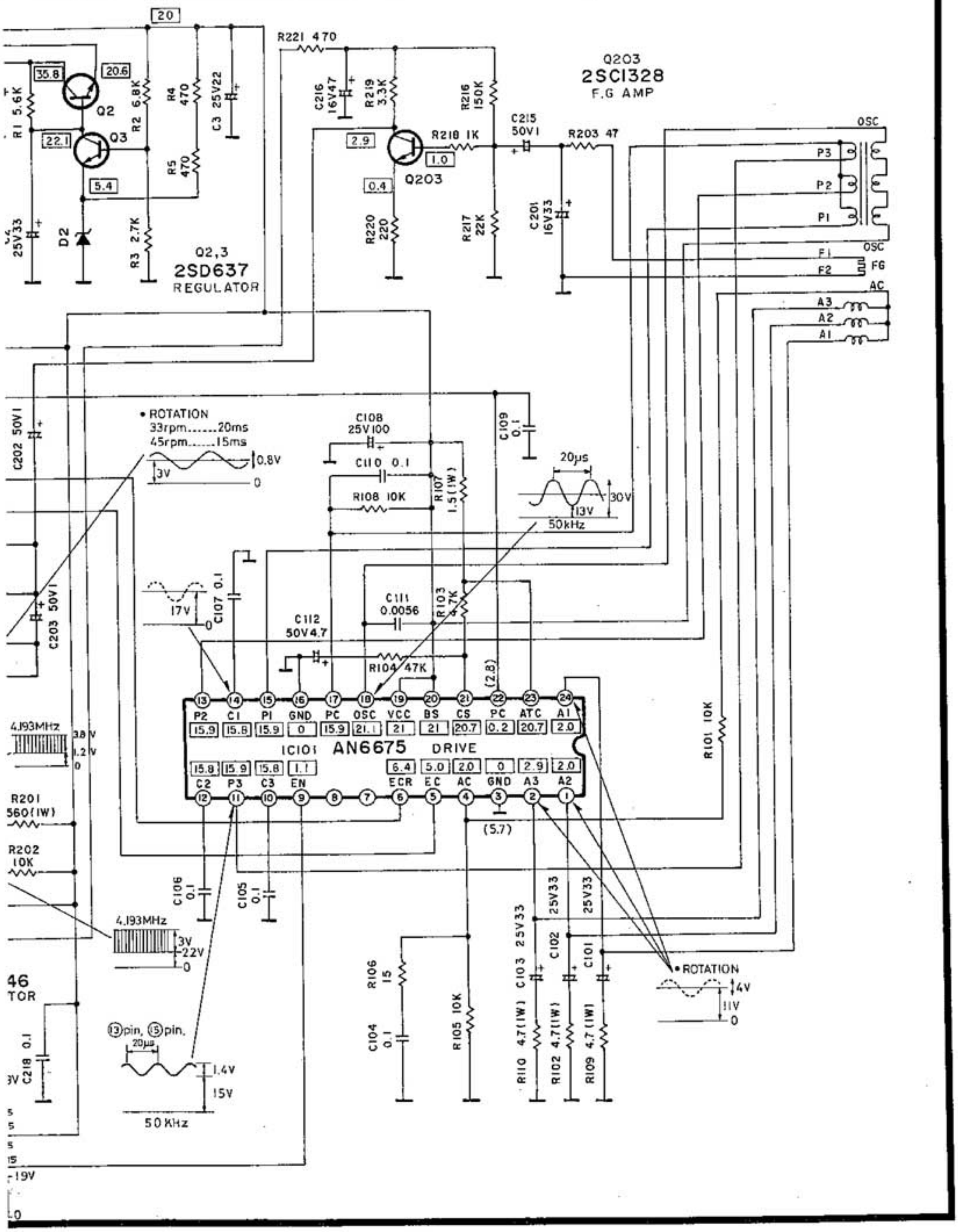
Symbol located near the fuse indicates fast operating type. For continued protection against fire hazard, replace with same type fuse. Refer to the symbol for fuse rating.

FUSIBLE REMPLACEMENT

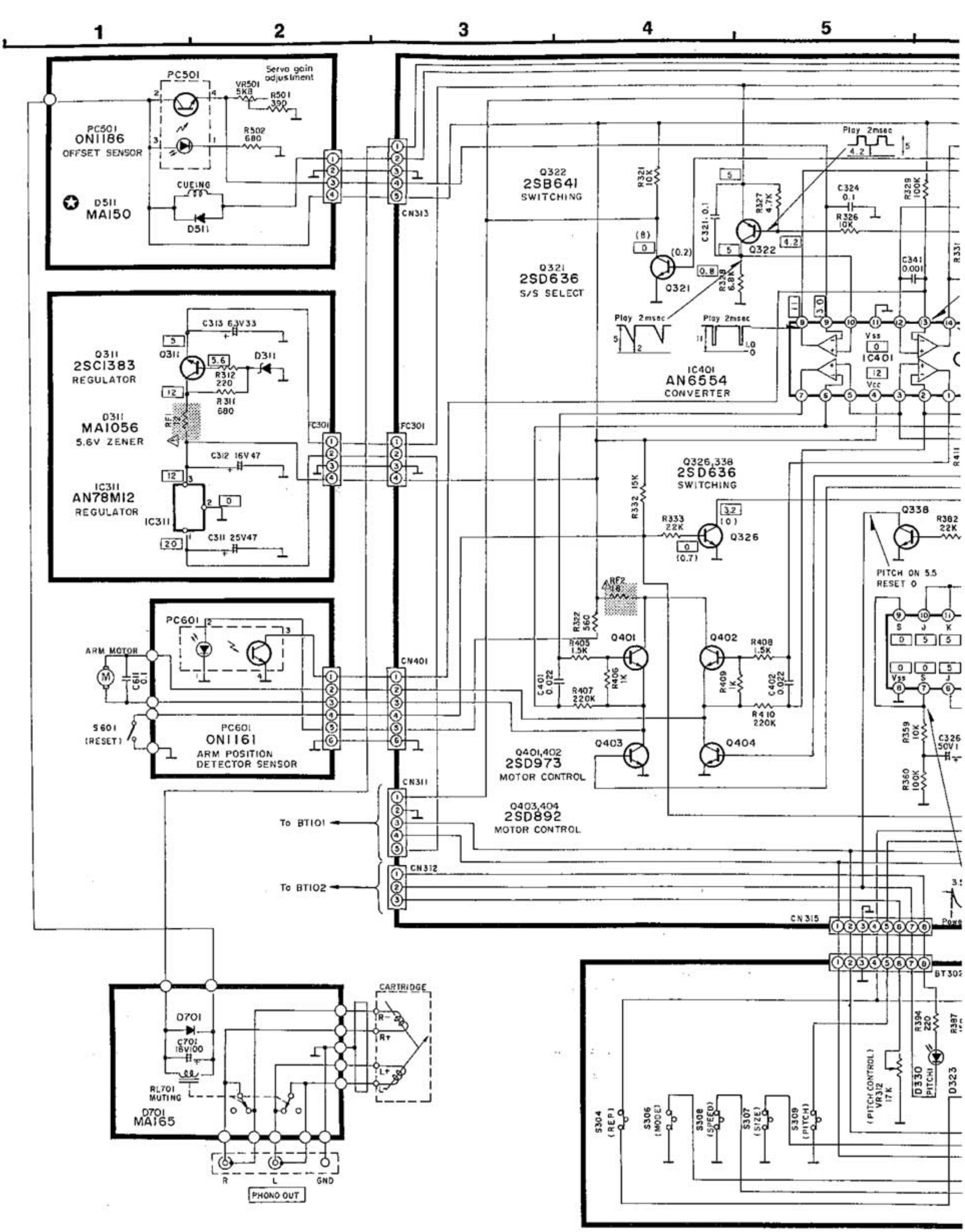
Le symbole qui se trouve près du fusible singifie un fusible à action rapide. Pour une protection contiue contre les risques d'incendie, n'utiliser que des fusibles du même type. Se rapporter au symbole pour la valeur des fusibles.

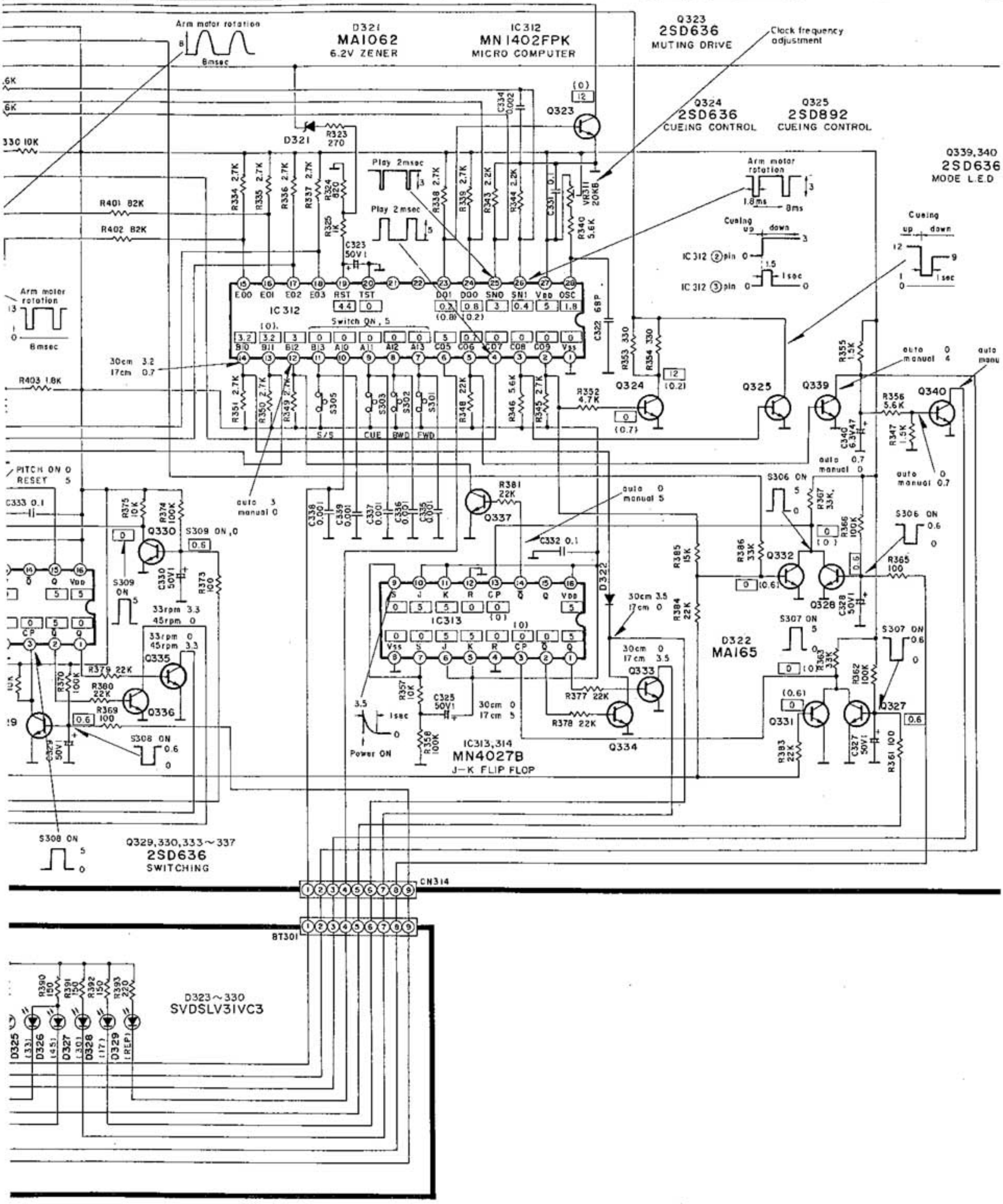
★ **Power source circuit for U.S.A.**

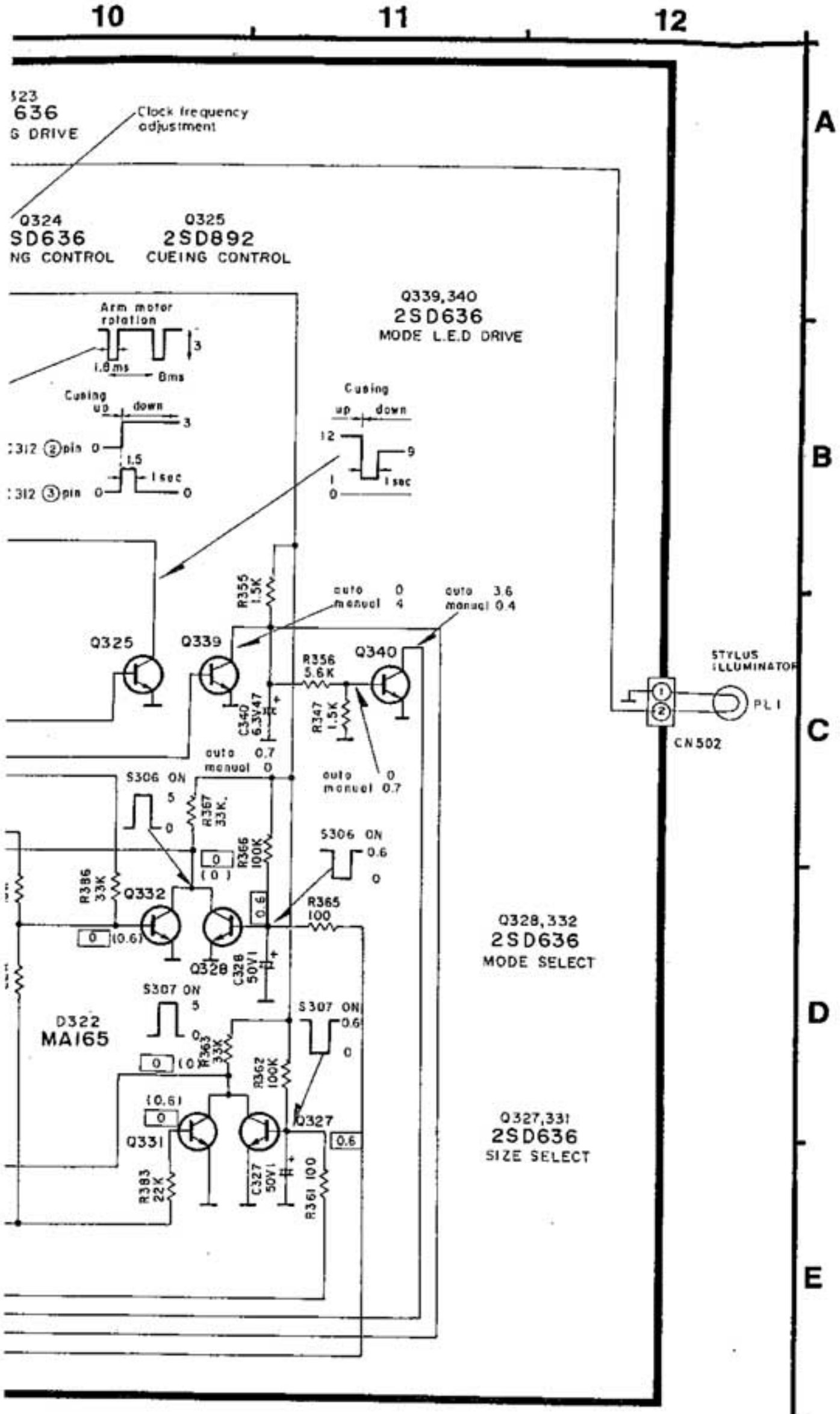




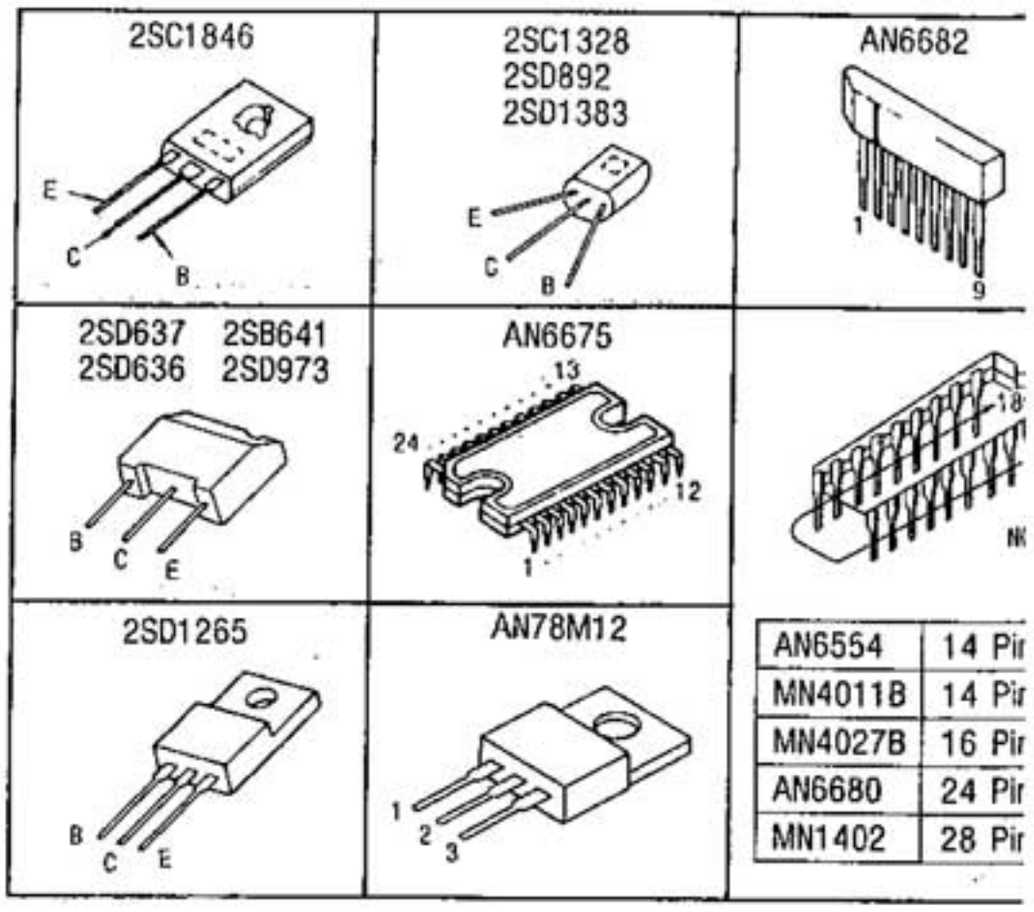
·503
54DC3
3E IND.


1
2
3
4
5
PC501
Servo gain adjustment
VR501 5KB
R501 390
R502 680
PC501 ON1186 OFFSET SENSOR
CUEING
D511 MA150
D511
CN313
Q322 2SB641 SWITCHING
Play 2msec
R321 10K
C321 0.1
R327 4.7K
C324 0.1
R326 10K
R329 100K
Q322
Q321 2SD636 S/S SELECT
R328 6.8K
Q321
C341 0.001
IC401 AN6554 CONVERTER
Vss
Vcc
IC401
C313 6.3V33
Q311 2SC1383 REGULATOR
D311
R312 220
R311 680
D311 MA1056 5.6V ZENER
C312 16V47
IC311 AN78M12 REGULATOR
C311 25V47
FC301
Q326,338 2SD636 SWITCHING
R332 15K
R333 22K
Q326
Q338
R362 22K
PITCH ON 5.5 RESET 0
RF2 1.8
R322 560
Q401
Q402
R405 1.5K
R408 1.5K
C401 0.022
R406 1K
R409 1K
C402 0.022
R407 220K
R410 220K
Q403
Q404
PC601
ARM MOTOR
C611 0.1
S601 (RESET)
PC601 ON1161 ARM POSITION DETECTOR SENSOR
CN401
Q401,402 2SD973 MOTOR CONTROL
Q403,404 2SD892 MOTOR CONTROL
R359 10K
C326 50V1
R360 100K
CN311
To BT101
CN312
To BT102
CN315
D701
C701 16V100
RL701 MUTING
D701 MA165
CARTRIDGE
R-
R+
L+
L-
R
L
GND
PHONO OUT
S304 (REP)
S306 (MODE)
S308 (SPEED)
S307 (SIZE)
S309 (PITCH)
(PITCH CONTROL) VR312 17K
D330 PITCH
D323
R394 220
R387


D321
MA1062
6.2V ZENER
IC312
MN1402FPK
MICRO COMPUTER
Q323
2SD636
MUTING DRIVE
Clock frequency adjustment
Q324
2SD636
CUEING CONTROL
Q325
2SD892
CUEING CONTROL
Q339,340
2SD636
MODE L.E.D
Arm motor rotation
8msec
Play 2msec
Play 2msec
IC312
Switch ON, 5
S/S
CUE
BWD
FWD
IC313
IC313,314
MN4027B
J-K FLIP FLOP
D322
MA165
Q330
Q335
Q336
Q337
Q332
Q328
Q333
Q334
Q331
Q327
Q329,330,333~337
2SD636
SWITCHING
D323~330
SVDSLV31VC3
CN314
BT301
PITCH ON 0
RESET 5
auto 5
manual 0
auto 0
manual 5
auto 0
manual 4
auto 0.7
manual 0
auto 0
manual 0.7
S309 ON,0
S306 ON
S307 ON
S308 ON
33rpm 3.3
45rpm 0
33rpm 0
45rpm 3.3
30cm 3.2
17cm 0.7
30cm 3.5
17cm 0
30cm 0
17cm 3.5
30cm 0
17cm 5
Power ON
Cueing
up down
1sec
1.8ms
8ms



• Terminal guide of transistors and IC's



AN6554	14 Pi
MN4011B	14 Pi
MN4027B	16 Pi
AN6680	24 Pi
MN1402	28 Pi

• Voltage of tonearm motor control circuit

※ 0.6 ms / 2.5 ms

Pin No. \ Mode		Stop	Forward (High Speed)	Forward (Low speed)	Backward (High speed)	Backw (Low sp
IC 312	15	5	0	※	5	5
	16	5	5	5	0	※
	17	1	0	0	1.4	1.
	18	1	1.4	1.4	0	0
IC 401	1	1.4	1.4	1.4	11	4.
	2	3.6	3.7	3.7	2.6	3.
	3	3.4	3.4	3.4	3.4	3.
	5	3.4	3.4	3.4	3.4	3.
	6	3.6	2.6	3.4	3.7	3.
	7	1.4	11	4.5	1.4	1.
Q401	E	0.3	9	2.5	0.8	0.
	C	12	12	12	12	1
	B	0.7	10	3	1	1
Q402	E	0.3	0.8	0.8	9	2.
	C	12	12	12	12	1
	B	0.7	1	1	10	3
Q403	E	0	0	0	0	0
	C	0.3	9	2.5	0.8	0.
	B	1	0.2	0.2	1.5	1.
Q404	E	0	0	0	0	0
	C	0.3	0.8	0.8	9	2.
	B	1	1.5	1.5	0.2	0.

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

1. **S1** : Power switch in "**on**" position.
2. **S2** : Voltage selector in "**220-240 V**" position.
3. **S301** : Forward search switch.
4. **S302** : Backward search switch.
5. **S303** : Cueing switch.
6. **S304** : Repeat switch.
7. **S305** : Start/stop switch.
8. **S306** : Mode selector switch.
9. **S307** : Size selector switch.
10. **S308** : Speed selector switch.
11. **S309** : Pitch switch.
12. **S601** : Rest switch in "**off**" position.
13. The voltage value, and waveforms are the reference voltage values of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Therefore, the voltage value and waveform may include some error due to the internal impedance of the tester or the measuring set.
    * [ ] is the voltage when turntable is in stop.
    * ( ) is the voltage when turntable is in rotation. (at 33 rpm)
14. —+B Voltage lines
15. Important safety notice:
    Components identified by ⚠mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.
16. The part No. of diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement parts list.

IMPORTANT SAFETY NOTICE

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing it is esential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

• Function of terminal (MN1402FPK)

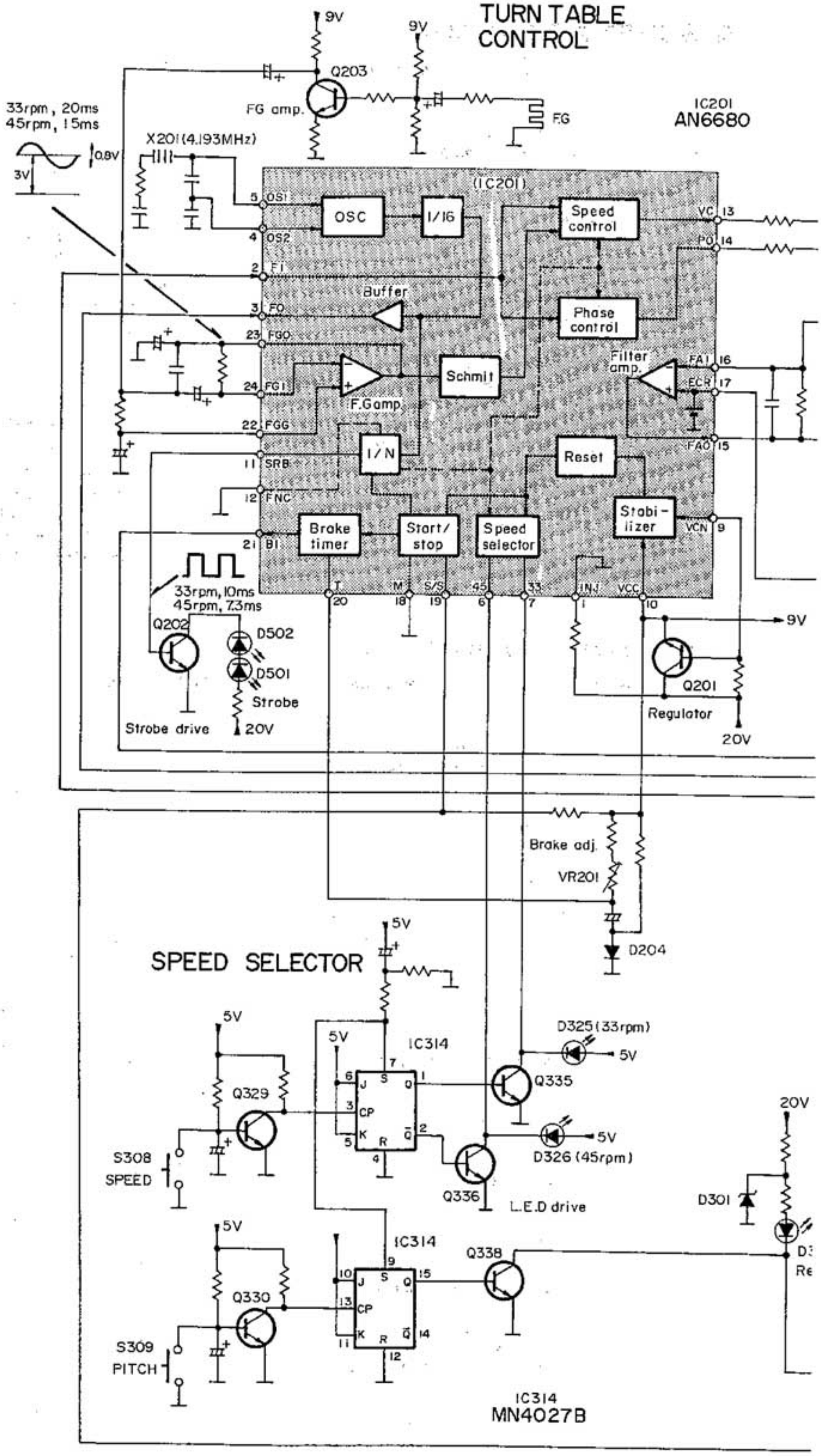
Pin No.	Symbol	Description
1	VSS	Ground terminal
2	C09	Cueing control terminal ("H" during cueing down)
3	C08	Cueing control terminal ("H" only for about 1 sec. during cueing down)
4	C07	Offset error angle reading strove
5	C06	Mode select indication terminal ("H" in auto and "L" in manual)
6	C05	Repeat indicator terminal (ON at "L")
7	AI3	Forward search key input
8	AI2	Backward search key input
9	AI1	Cueing key input
10	AI0	Repeat key input
11	BI3	Start/stop key input
12	BI2	Operation mode detection ("L" in manual and "H" in auto)
13	BI1	Rest position detection terminal ("H" when tonearm is at rest position)
14	BI0	Record size detection terminal (30 cm "H", 17 cm "L")

Pin No.	Symbol	Description
15	E00	※ Arm drive motor control terminal
16	E01	
17	E02	
18	E03	
19	RST	Reset terminal (Microcomputer is reset at "L")
20	TEST	Test terminal
21	D03	Not used
22	D02	
23	D01	Muting control terminal ("H" when muting "off")
24	D00	Turntable platter start/stop control terminal ("L" at start and "H" at stop)
25	SNS0	Offset angle detection input terminal
26	SNS1	Arm position detection input terminal
27	VDD	Power supply (+5 V)
28	OSC	Oscillation circuit (clock frequency adjusted to 33±1 μs)

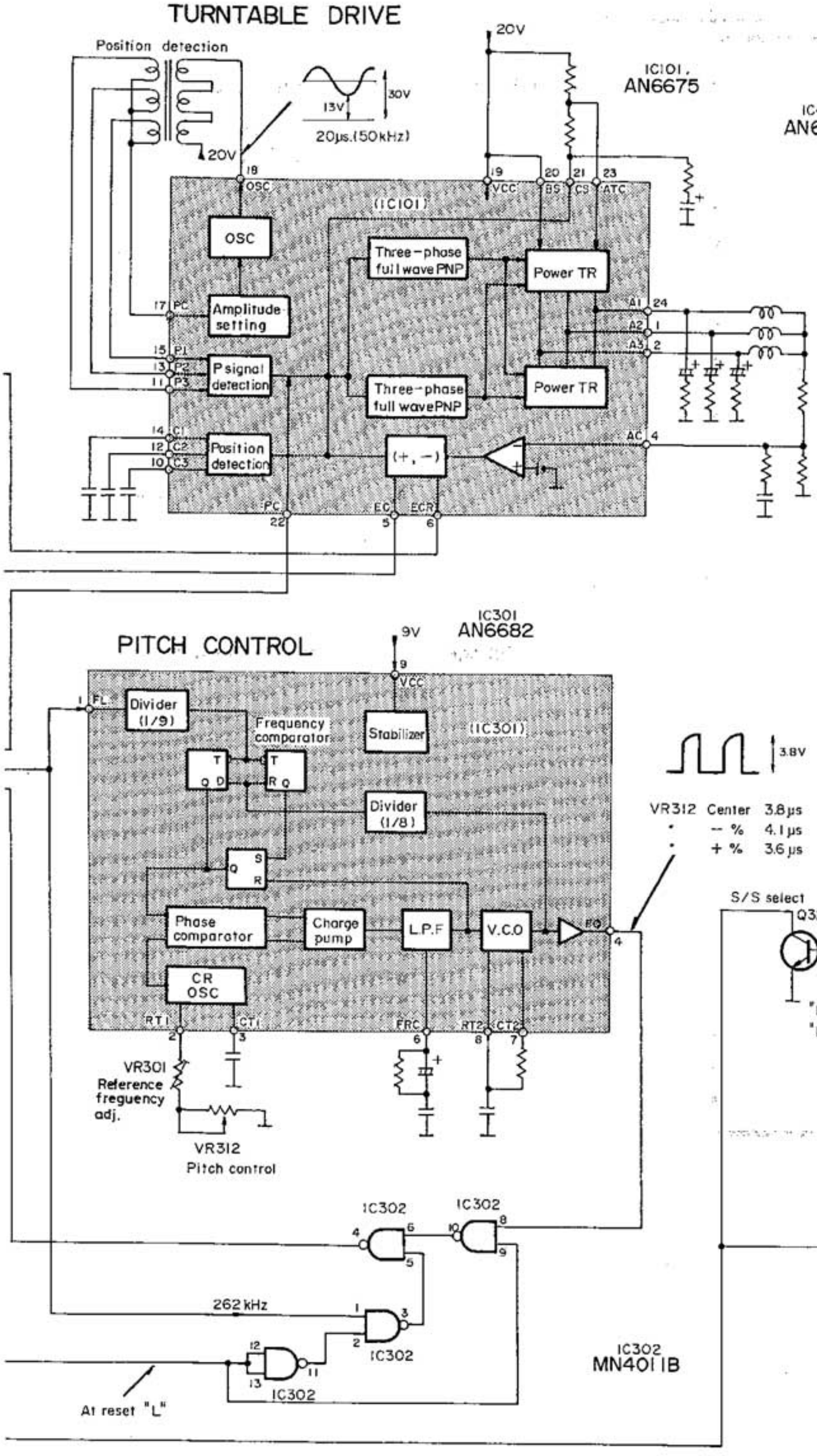
※

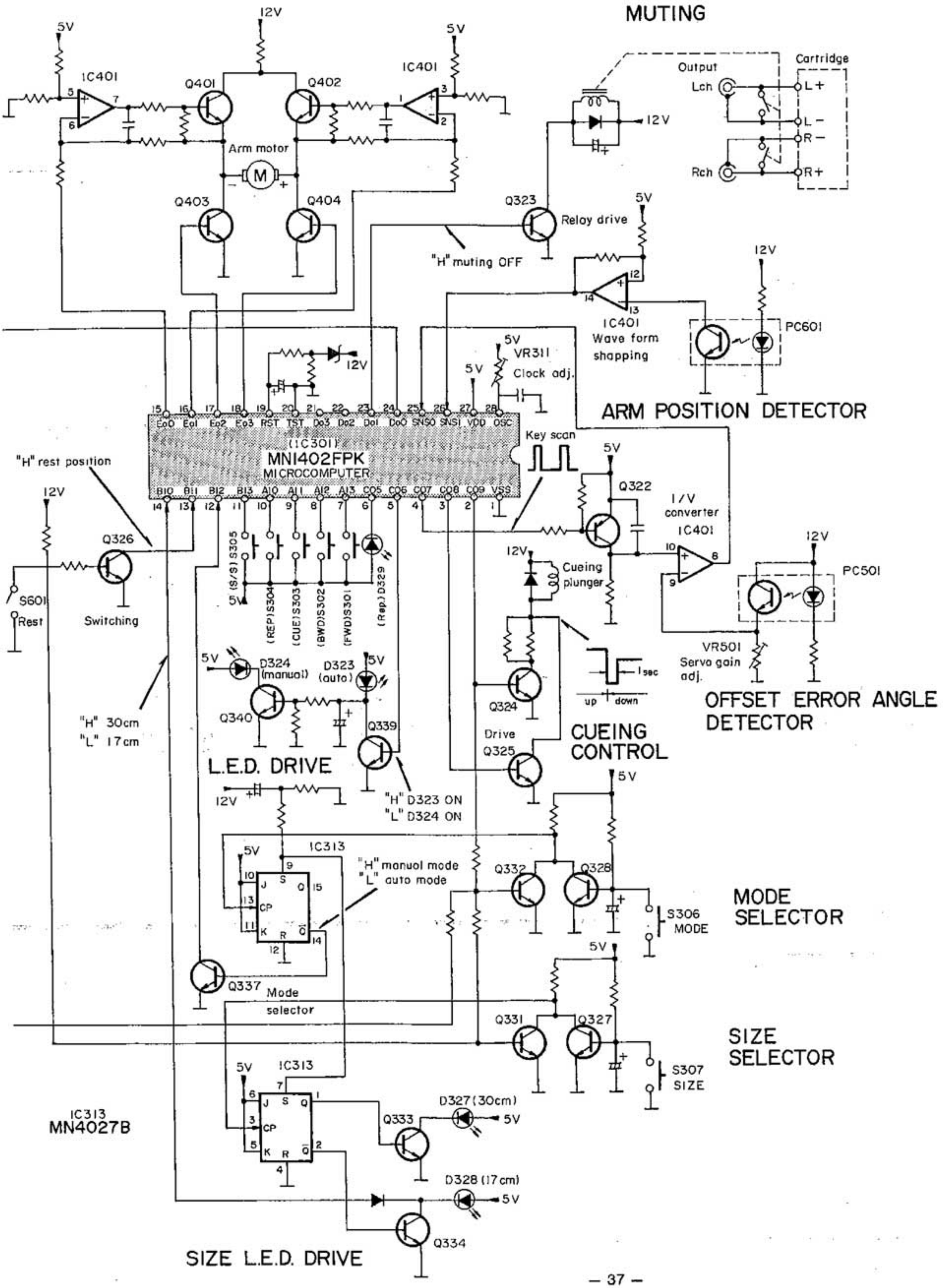
	15	16	17	18
Stop	H	H	H	H
Forward (High speed)	L	H	L	H
Forward (Low speed)	※	H	L	H
Backward (High speed)	H	L	H	L

■ BLOCK DIAGRAM



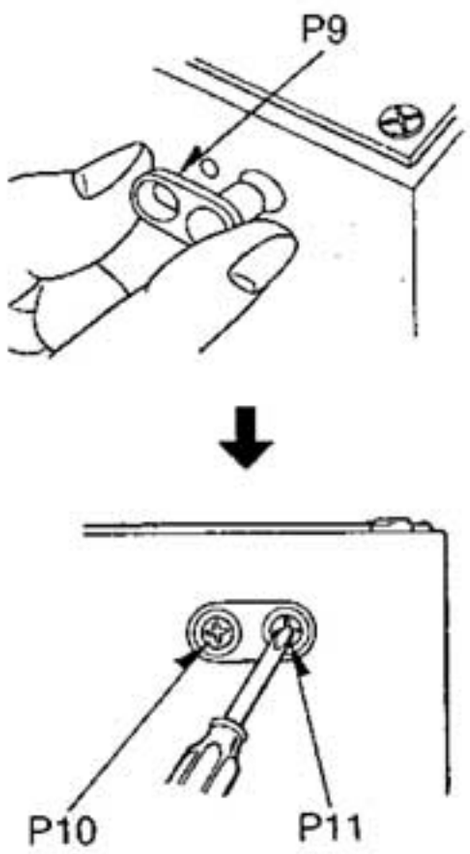
TURNTABLE DRIVE



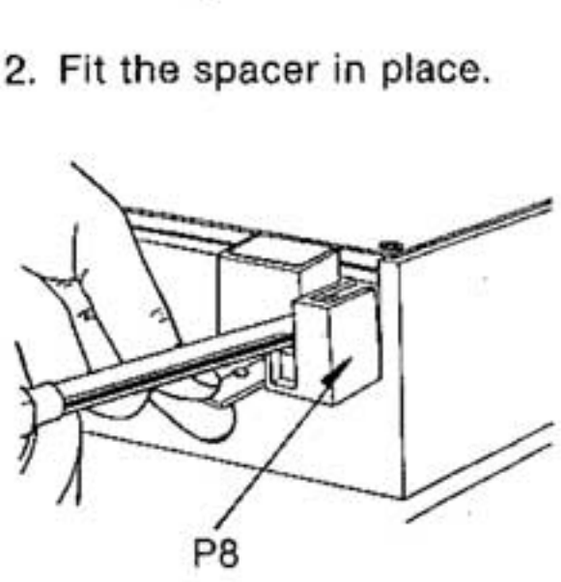

TONEARM MOTOR CONTROL
MUTING
ARM POSITION DETECTOR
OFFSET ERROR ANGLE DETECTOR
CUEING CONTROL
MODE SELECTOR
SIZE SELECTOR
L.E.D. DRIVE
SIZE L.E.D. DRIVE
5V
12V
IC401
Q401
Q402
Arm motor
M
Q403
Q404
Output
Lch
Rch
Cartridge
L+
L-
R-
R+
Q323
Reloy drive
"H" muting OFF
IC401
Wave form shapping
PC601
VR311
Clock adj.
Key scan
(IC301)
MN1402FPK
MICROCOMPUTER
EoO Eo1 Eo2 Eo3 RST TST Do3 Do2 Do1 DoO SNSO SNSI VDD OSC
BI0 BI1 BI2 BI3 AI0 AI1 AI2 AI3 CO5 CO6 CO7 CO8 CO9 VSS
"H" rest position
Q322
I/V converter
IC401
Q326
S601
Rest
Switching
"H" 30cm
"L" 17cm
S305 (S/S)
S304 (REP)
S303 (CUE)
S302 (BWD)
S301 (FWD)
D329 (Rep.)
Cueing plunger
PC501
VR501
Servo gain adj.
1sec
up
down
Q324
Drive
Q325
D324 (manual)
D323 (auto)
Q340
Q339
"H" D323 ON
"L" D324 ON
IC313
"H" manual mode
"L" auto mode
Q332
Q328
S306 MODE
Q337
Mode selector
Q331
Q327
S307 SIZE
IC313
MN4027B
D327 (30cm)
Q333
D328 (17cm)
Q334

■ PACKING

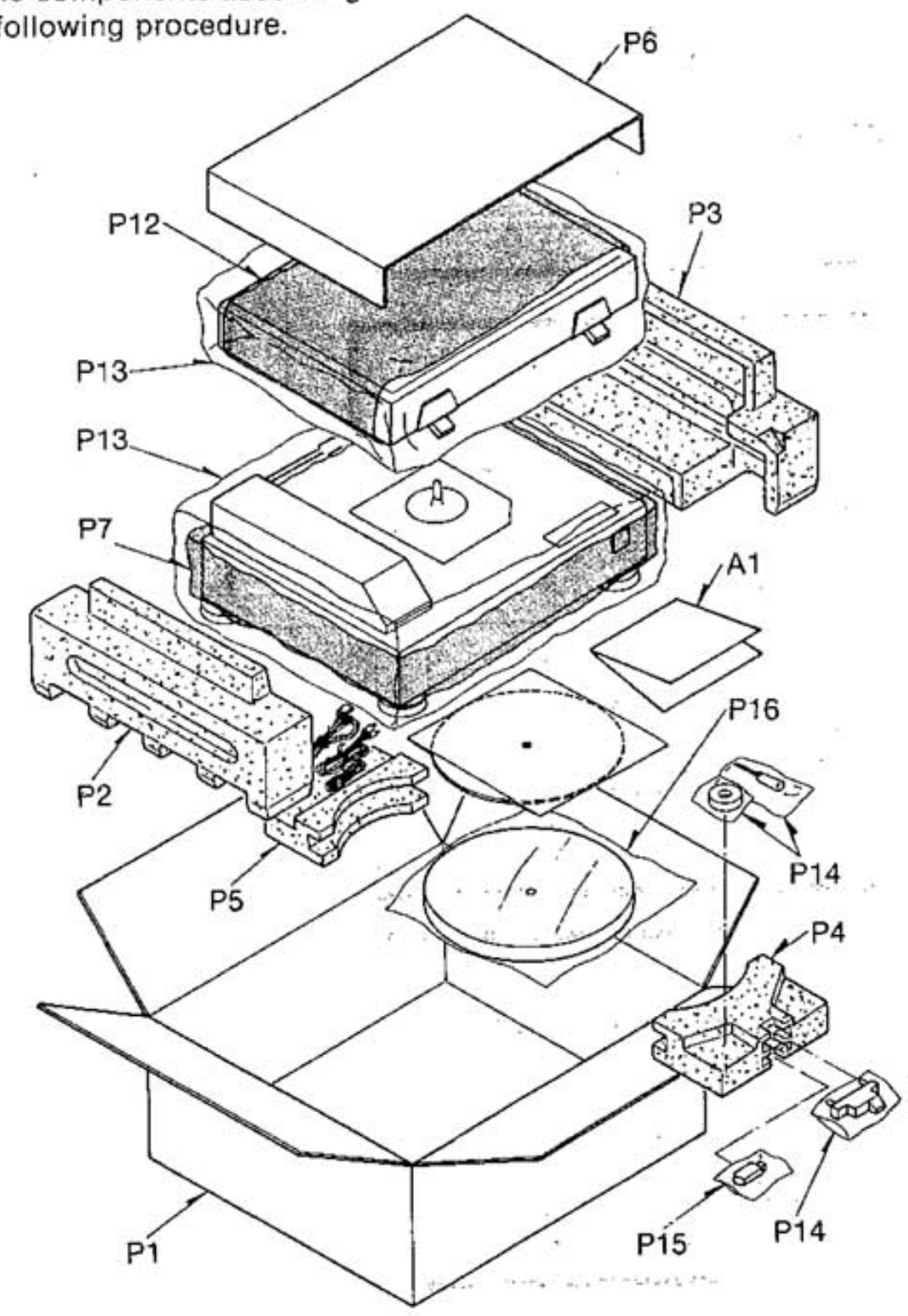
1. Fit the clamper in place.



2. Fit the spacer in place.



3. Pack the components according to the following procedure.



Ref. No.	Part No.	Description
ACCESSORIES		
A1 [M]	SFNUM03M01	Instruction Book (1)
A1 [MC]	SFNUM03C01E	Instruction Book (1)
A1 [EK]	SFNUM03G01	Instruction Book (1)
A1 [EI]	SFNUM03I01	Instruction Book (1)
A1 [PA, PE, PC]	SFNUM03P01E	Instruction Book (1)
A1 [Other Areas]	SFNUM03S01	Instruction Book (1)
A2 [M, MC] ⚠	SFDAC05M01	AC Cord (1)
A2 [XL] ⚠	SFDAC05L01	AC Cord (1)
A2 [EK] ⚠	SFDAC05G02	AC Cord (1)
A2 [XZ] ⚠	SRDA007L01	AC Cord (1)
A2 [XA, XM] ⚠	SFDAC05X02	AC Cord (1)
A2 [PA, PE, PC] ⚠	SFDAC05N01	AC Cord (1)
A2 [Other Areas] ⚠	SFDAC05E02	AC Cord (1)
A3	SFDHM03N02	Phono Cord (1)
A4	SFDLJ02N01	Ground Wire (1)
A5	SFWE010	45 rpm Adaptor
A6	SFCFB20502	Driver (1)
A7 [XA, XM] only ⚠	SFDKI19118	2 Pin Plug (1)
A8 [PA, PE, PC] only ⚠	QJP0603S	Adaptor (1)
PACKING PARTS		
P1 [MC, EF]	SFHPM03C01	Carton Box (1)
P1 [Other Areas]	SFHPM03M01	Carton Box (1)
P2	SFHHM03N01	Pad (L), Unit (1)
P3	SFHHM03N02	Pad (R), Unit (1)
P4	SFHHM03N03	Pad (A), Turntable Platter (1)
P5	SFHHM03N04	Pad (B), Turntable Platter (1)
P6	SFHDM03N01	Pad, Top (1)
P7	SFHZM03N01	Sheet, Side (1)
P8	SFHKM03N01	Spacer, Tonearm (1)
P9	SFHKM03N02	Clamper, Weight (1)
P10	XSN4D8FYBS	Screw, Clamp (1)
P11	XSN4D14FYBS	Screw, Clamp (1)
P12	SFYP100A40	Sheet (1)
P13	SFYF60A80	Polyethylene Bag, Unit & Dust Cover (2)
P14	SFYF09A15	Polyethylene Bag, Accessories (3)
P15 Except for [M, MC]	SFYF05A06	Polyethylene Bag, Cartridge (1)
P16	SFYF40X45	Polyethylene Bag, Turntable (1)

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